

**REDACTED – PUBLIC VERSION**

IN THE UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF DELAWARE

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SMITH KLINE & FRENCH LABORATORIES, LTD,  
and SMITHKLINE BEECHAM CORP., D/B/A  
GLAXOSMITHKLINE,

Plaintiffs,

v.

TEVA PHARMACEUTICALS USA, INC.,

Defendant.

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Civil Action No. 05-197 GMS

**FILED UNDER SEAL**

**[PROPOSED] FINDINGS OF FACT AND CONCLUSIONS OF LAW ON  
DEFENDANT TEVA PHARMACEUTICALS USA, INC.'S DEFENSE  
AND COUNTERCLAIM OF INEQUITABLE CONDUCT**

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Dated: February 7, 2007

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## I. INTRODUCTION AND PROCEDURAL HISTORY

1. In this patent infringement case, defendant Teva Pharmaceuticals USA, Inc. (“Teva”) contends that the sole patent-in-suit, U.S. Patent No. 4,824,860<sup>1</sup> (“the ‘860 patent”) is unenforceable for inequitable conduct committed during the prosecution of the patent by Plaintiffs Smith Kline & French Laboratories Ltd. and SmithKline Beecham Corp., d/b/a GlaxoSmithKline (collectively, “GSK”). The following are the Court’s [proposed] findings and conclusions of law on Teva’s inequitable conduct defense and counterclaim.<sup>2</sup>

2. This Court held a three day bench trial on December 18-20, 2007 during which it received the testimony of live witnesses presented by each of the parties. The only fact witness called to testify at trial was Teva’s corporate representative. The following witnesses gave live testimony at trial:

### **Witnesses Called By Teva (in the order called)**

- Deborah Jaskot Vice President of Regulatory Affairs, Teva Pharmaceuticals USA
- Daniel Tarsy, MD Vice Chair, Department of Neurology, Beth Israel Deaconess Medical Center and Professor of Neurology, Harvard Medical School
- John Paul Long, Ph.D. Professor Emeritus of Pharmacology, University of Iowa

### **Witnesses Called By GSK (in the order called)**

- Lewis Sudarsky, MD Associate Physician, Neurology, Brigham & Women’s Hospital and Associate Professor of Neurology, Harvard Medical School
- Paul Alan Bartlett, Ph.D. Professor Emeritus of Chemistry, University of California at Berkeley
- Peter George Jenner, Ph.D. Professor of Pharmacology, Kings College, University of London

3. GSK did not call any fact witnesses live at trial. Among the fact witnesses that GSK did not call are: the named inventor of the ‘860 patent; other scientists involved in GSK’s research relating to ropinirole and other compounds identified in the ‘860 patent; and the ‘860 patent attorneys who were involved in and knowledgeable about the prosecution of the ‘860 patent in front of the United States Patent and Trademark Office (“USPTO”). These fact witnesses were all under GSK’s control, were represented by GSK’s counsel at their depositions, and cooperated with GSK throughout the litigation.

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<sup>1</sup> U.S. Patent No. 4,824,860 has been entered into evidence as PTX 35, but for ease of reference, is referred to as “the ‘860 patent” throughout these findings.

<sup>2</sup> All emphasis added unless otherwise noted.

4. Following trial the Court received the designated deposition testimony of GSK witnesses involved in the conception, drafting, or prosecution of the '860 patent. These GSK-controlled witnesses—all of whom were identified on GSK's "will call" or "may call" trial witness list—included the following individuals:

- Dr. David Owen, inventor of the '860 patent, is a former GSK employee whom GSK retained as a consultant for this litigation. (Owen Dep. Tr. at 17:10-18:4.) He was represented by GSK counsel at his deposition and was designated as GSK's Rule 30(b)(6) representative on the conception and reduction to practice of the '860 patent inventions. (*Id.* at 7:14-8:12; DTX 41.);
- Dr. Carol Harvey, head of the ropinirole project during Dr. Owen's involvement, is a GSK employee and was represented by GSK counsel at her deposition (Harvey Dep. Tr. at 9:18-20; 16:12-16);
- Mr. Roger Eden, a pharmacologist who worked with Dr. Owen on the ropinirole project, is a former GSK employee who was retained by GSK as a consultant for purposes of this litigation and was represented by GSK counsel at his deposition (Eden Dep. Tr. at 42:13-16; 154:1-5; Owen Dep. Tr. at 106:2-12; DTX 22); and
- Mr. Peter Giddings, a U.K. lawyer involved in the preparation of the '860 patent, is a current GSK employee and was represented by GSK's counsel at his deposition. (Giddings Dep. Tr. at 9:5-11.)

5. Because GSK elected not to call any of these individuals under its control as live witnesses at trial, this Court did not hear any live testimony from GSK fact witnesses about the central questions raised by Teva's claims of inequitable conduct. These questions include:

- Who prepared the '860 patent application?
- Why does the '860 patent application assert a distinction between "pre-synaptic" and "post-synaptic" D2 dopamine receptors ('860 patent, col. 1, ll. 48-53) to distinguish the claimed invention from the prior art, when the sole named inventor believes that any such distinction is an "absolute irrelevance" (Owen Dep. Tr. at 192:19-193:3)?
- How did the University of Bradford's test results end up in a GSK patent as support for the claimed invention, without any disclosure of that other entity's role (*see* '860 patent, col. 3, l. 40-col. 6, l. 60)?
- What was the source of the information described in the '860 patent about the dosage of ropinirole to be used to treat Parkinson's disease (*see id.*, col. 3, ll. 23-39)?
- Who was the source of the 749 non-ropinirole compounds identified in claim 1 of the '860 patent (*see id.*, col. 6, l. 67-col. 8, l. 4), and what was the selection process for including those compounds while excluding other related compounds?

6. Teva also called by deposition testimony other fact witnesses not under GSK's control, including Professor Brenda Costall, who was a researcher at University of Bradford in England. (Costall Dep. Tr. 22:15-23:1.) Professor Costall performed for GSK all of the tests discussed in the '860 patent as showing ropinirole's potential efficacy as an anti-Parkinson's drug (Owen Dep. Tr. at 221:11-15):

Q. Okay, so the tests that are described in the biological data section, all of those tests were conducted by the researchers at Bradford University?

A. Yes, that's what we've just concluded, isn't it? Yes.

7. Teva also submitted numerous exhibits relating to the facts and circumstances of the development of ropinirole as an anti-Parkinson's drug.

8. The Court has considered the testimony and evidence and, for the reasons stated herein, the Court concludes that the '860 patent is unenforceable for inequitable conduct committed by Dr. Owen and his representatives from GSK during prosecution of the patent before the USPTO. Dr. Owen and his representatives made false and misleading arguments to the USPTO to obtain patent protection for a method of using compounds, many of which were known in the prior art, to treat Parkinson's disease. *See Hoffmann-LaRoche, Inc. v. Promega Corp.*, 323 F.3d 1354, 1363 (Fed. Cir. 2003) (affirming inequitable conduct based on misrepresentations in patent specification). The Court's findings of fact and conclusions of law on inequitable conduct are set forth in detail below.

9. **First**, Dr. Owen and his representatives falsely declared to the USPTO that Dr. Owen was the sole inventor of the subject matter claimed by the '860 patent. (*See* DTX 97.) *See also PerSeptive Biosys. Inc. v. Pharmacia Biotech, Inc.*, 225 F.3d 1315, 1320 (Fed. Cir. 2000) (affirming inequitable conduct based on "misrepresentations, omissions and half-truths to the [US]PTO" regarding inventorship). Indeed, while tests showing the anti-Parkinson's effects of ropinirole were included with the '860 patent, not a single one of those tests was selected, performed, or interpreted by Dr. Owen or under his direction.

Q. In speaking with Professor Costall or any of the other Bradford researchers, did you ever specify to them what tests should be run to test your hypothesis?

A. Not that I recall. I make the distinction between presenting the hypothesis and wanting any data put in context with other effects. Let me stand back. You go to experts for their expertise. I don't then tell them, when I'm—my expertise is in cardiovascular pharmacology, I don't tell them how to do their CNS experiments.

Q. Before they ran their experiments, did they tell you what experiments they were going to run?

A. I don't recall that, I just don't recall this level of detail.

(Owen Dep. Tr. at 110:10-111:3.) The researchers who performed and/or analyzed this work were not identified to the USPTO, much less named as co-inventors with Dr. Owen. Nor were the written reports that

were the origin of the patent's data produced to the USPTO. *Hoffmann-LaRoche*, 323 F.3d at 1363-64 (holding that misrepresentation in the specification of tests performed is grounds for inequitable conduct).

10. Additionally, the '860 patent does not just claim the use of ropinirole hydrochloride to treat Parkinson's disease. Instead, it also claims the use of 749 other compounds as anti-Parkinson's drugs. (*See* '860 patent, col. 6, l. 67-col. 8, l. 4.) But Dr. Owen testified in his deposition that he neither conceived of nor considered using any of these other compounds to treat Parkinson's disease. (*See, e.g.*, Owen Dep. Tr. at 120:7-14; 120:18-22.) Indeed, Dr. Owen testified that he would not have expected any of the other 749 compounds to work as a treatment for Parkinson's disease without first conducting the testing described in the '860 patent with respect to ropinirole (testing that, for ropinirole, was performed by non-GSK scientists). (*Id.* at 134:1-10.) However, these compounds that Dr. Owen disclaimed in his deposition are the same compounds for which he signed and submitted a declaration of inventorship to the USPTO in which he swore under penalty of perjury that he was the "sole inventor" of the use of all 750 claimed compounds claimed in the patent application as a method of treating Parkinson's disease. (DTX 97.) Thus, Dr. Owen's inventorship statement was false for this second reason as well.

11. **Second**, in an effort to distinguish the prior art, the applicants for the '860 patent argued that the known dopamine agonist compounds identified in and claimed by the '860 patent had previously been understood to be *different from* the prior art dopamine agonist compounds with respect to whether they acted "pre-synaptically" or "post-synaptically." Specifically, the applicants for the '860 patent argued that prior art compounds that were well-known treatments for Parkinson's disease were known to act "post-synaptically." ('860 patent col. 1, ll. 36-38.) By contrast, the applicants for the '860 patent argued that the compounds claimed in the patent had previously been understood to act only "pre-synaptically," but that they had now been discovered by Dr. Owen to act "post-synaptically" as well. (*Id.* at col. 1, l. 48-53.) However, when Dr. Owen—the patent's sole named inventor—was confronted with this asserted distinction made in the patent, he admitted that the "distinction" was "an absolute irrelevance." (Owen Dep. Tr. at 192:19-193:3.)

12. As discussed more fully below, the Court concludes that the false and/or misleading statements made by Dr. Owen and his representatives at GSK were material, and made with an intent to deceive the USPTO

during the *ex parte* prosecution of the '860 patent. There is no reasonable explanation for the false statements and misleading arguments that the applicants made to the USPTO, and this Court concludes that the applicants acted with an intent to deceive the USPTO. *See Bruno Indep. Living Aids, Inc. v. Acorn Mobility Servs. Ltd.*, 394 F.3d 1348, 1354 (Fed. Cir. 2005) ("Bruno has not proffered a credible explanation for the nondisclosure, and an inference of deceptive intent may fairly be drawn in the absence of such an explanation.") GSK—through assertions of the attorney-client privilege over the patent prosecution process (*see, e.g.*, Owen Dep. Tr. at 81:10-16), and in electing to not present the live testimony of witnesses with knowledge about the patent and its prosecution—has not proffered a credible alternative explanation for these false statements, much less provided evidence to support such an alternative explanation. Additionally, there are circumstances beyond GSK's inability to explain how these misrepresentations were made in good faith from which this Court infers intent. "[W]here withheld information is material and the patentee knew or should have know[n] of that materiality, he or she can expect to have great difficulty in establishing subjective good faith sufficient to overcome an inference of intent to mislead." *Bristol-Myers*, 326 F.3d at 1239. Prior to the application for the '860 patent, GSK had patented ropinirole and other dopamine agonist compounds (*see* U.S. Patent No. 4,452,808 ("the '808 patent"); U.S. Patent No. 4,314,944 ("the '944 patent")) and spent several years unsuccessfully trying to develop ropinirole and some of these other dopamine agonist compounds as cardiovascular agents under its patents. (*See, e.g.*, DTX 98.) The Court concludes that Teva has shown by clear and convincing evidence that Dr. Owen and his representatives at GSK committed inequitable conduct during the prosecution of the '860 patent in front of the USPTO.

## II. FINDINGS OF FACT

### A. Dr. Owen's Alleged Contribution To Conception Of The Claimed Invention Was Limited To A "Hypothesis."

13. Dr. Owen contends that he was the first person to come up with a "hypothesis" that ropinirole was a potential treatment for Parkinson's disease (Owen Dep. Tr. at 72:3-6; 72:8-13):

Q. So prior to approaching Dr. Costall to do this experimental work, did you have a definite idea that ropinirole could be used to treat Parkinson's, or was that more of a guess?

\* \* \*

A. No, it was absolutely in my mind that it could be a treatment for Parkinson's disease, that is a hypothesis that was formed, but I needed others to confirm it, I didn't have the experimental models under my direction to confirm that. I wanted people who if they confirmed it, others would believe them.

Dr. Owen further contends that he came up with this hypothesis alone, even though he did so by observing the behavioral effects of ropinirole in animal tests being conducted by another GSK researcher, Annette Wright (*id.* at 114:21-115:6; 115:8-115:15):

Q. I guess my question is more generally about the basis for your concluding that ropinirole could have been a treatment for Parkinson's. Did you need both of those factors, the fact that ropinirole was a D2 receptor agonist, selective D2 receptor agonist, and that it showed CNS effects, to reach the hypothesis that it could be used to treat Parkinson's disease?

\* \* \*

A. The fact that it was a D<sub>2</sub> agonist, and the fact that the observations made in the studies observed—conducted by Annette Wright I believe formed the rational basis to think it was a potential treatment for Parkinson's disease, those two things together, I believe, justified a hypothesis, and the purpose of a hypothesis is to provide a basis to test the hypothesis.

14. Dr. Owen was an experienced and well-respected GSK pharmacologist, but he acknowledged that his specialty was in cardiovascular pharmacology, not the pharmacology of the central nervous system (CNS) that relates to Parkinson's disease nor the chemistry of why certain compounds would interact with the D<sub>2</sub> receptors (*id.* at 127:11-13; 127:16-17):

Q. Can you tell from that information whether that falls within the general structural formula in column 2 of the 860 patent?

\* \* \*

A. I'm the cardiovascular pharmacologist in this process, that's a chemistry matter.

(*see also id.* at 54:22-55:8.) As a result, Dr. Owen did not even have the expertise to test the hypothesis he allegedly came up with all by himself (*Id.* at 108:12-17; 108:19-109:2):

Q. You said that when you spoke to Professor Costall about your hypothesis that ropinirole could be used for Parkinson's disease, you were going to her and Professor Naylor for their expertise in designing a series of tests for that, is that correct?

\* \* \*

A. The way I would express it is that I had developed a hypothesis. In the ideal world, I would have had the expertise to test my hypothesis, but I was of the view that I should go to experts to test the hypothesis, and hence I went to Professor Costall and Professor Naylor.

15. Even accepting Dr. Owen's testimony as true, at best his contribution to GSK's ropinirole project was minimal. Dr. Owen's time involvement in the ropinirole project was limited to the time period from approximately late 1985 (*id.* at 74:8-15) to some time between late 1986 and mid- to late- 1987. (Harvey

Dep. Tr. at 81:10-22; 202:4-6.) However, GSK's pre-clinical research with ropinirole started in 1982, when the compound was synthesized by Gregory Gallagher. (DTX 45 at GSK-REQ026680.)

16. Dr. Owen first became involved in GSK's ropinirole research work when the project was transferred to GSK's facilities in Welwyn, England, after GSK scientists in Philadelphia had already spent years trying to develop the drug as a treatment for cardiovascular conditions.

Q. Let me just make sure that I—before I ask you to continue about that. So you mentioned that the project was transferred to the UK, is that the point at which you first became directly involved in the development of ropinirole?

A. Yes.

(Owen Dep. Tr. at 42:19-43:2.)

Q. Did you do testing on the CNS effects of ropinirole?

A. Not initially. We did—it was a cardiovascular drug. We, I was, my labs were cardiovascular people. We did the experiments that we thought were appropriate to extend our understanding of the cardiovascular profile, that was the purpose, that's what we do, that's what we know about.

(*Id.* at 54:22-55:8.) In Welwyn, Dr. Harvey was the head of the ropinirole project team of which Dr. Owen was a member. (Harvey Dep. Tr. at 16:12-16.) By mid- to late-1987, Dr. Owen had dropped out of the ropinirole project entirely. (*Id.* at 81:5-22.)

17. Dr. Owen's chief responsibility on the ropinirole project during his short tenure was overseeing the work of others in the pharmacology area, notably Mr. Eden. Under Dr. Owen's supervision from the outset were Mr. Roger Eden and Annette Wright, a technician who worked in Mr. Eden's laboratory. (Eden Dep. Tr. at 42:7-9; 63:1-7; Harvey Dep. Tr. at 49:16-22.) Dr. Owen testified that, even when he was part of the ropinirole project team, he "delegated a lot of the day-to-day activity to others, and in particular to Roger Eden." (Owen Dep. Tr. at 106:2-12.)

18. Dr. Owen's claimed inventive contribution to ropinirole was the "hypothesis" that because (1) ropinirole was a known dopamine agonist at D<sub>2</sub> receptors; and (2) that ropinirole was known to have central effects; then (3) it may work as an anti-Parkinson's agent like other known centrally acting dopamine agonists. (*Id.* at 114:21-115:6; 115:8-115:15.)

19. Significantly, Dr. Owen did not discover that ropinirole was a D<sub>2</sub> agonist—that was known years before and disclosed in GSK's earlier filed '808 patent ('808 patent, col. 4, ll. 31-34) and it was part of the

“message” Dr. Owen received from Philadelphia when the ropinirole project was transferred to the United Kingdom (Owen Dep. Tr. at 73:9-74:1):

**Q.** You mentioned that before you approached Professor Costall, you knew that ropinirole was a selective dopamine agonist. What did you mean by that?

**A.** That it is an agonist at dopamine D<sub>2</sub> receptors, and based on pharmacology, and although—although I have been unable to be precise with you exactly what I read from Philadelphia and didn’t read from Philadelphia, we were—*the message was that this was a selective D<sub>2</sub> agonist*, and I assure you that guys like Paul Hieble and people in Philadelphia are very high quality pharmacologists making those determinations, I have a lot of respect for their—the ability of those guys to do that type of study.

20. Nor did Dr. Owen discover that ropinirole was centrally acting—that was found by, among others, Ms. Wright when she ran tests in dosage amounts well less than the amounts disclosed in the ‘808 patent.

**Q.** Annette Wright. So Annette Wright was the person who first noted that ropinirole appeared to penetrate the central nervous system; is that correct?

**A.** Yes.

(Eden Dep. Tr. at 62:4-8; DTX 24 at GSK-REQ000386, 391 (noting observation of “classic stereotyped ‘sniffing’”).) Indeed, anyone who ran tests in that dosage range saw the central effects of the drug.

**Q.** It goes on to say, “The purpose of the study outlined in this protocol is to investigate the CNS penetration of intravenously administered 101468 and related material at a steady state in a conscious male rat at a dose of two milligrams per kilogram,” correct?

**A.** Correct.

**Q.** You would agree with me that at least at this point, your team would have the understanding that 101468 would penetrate the central nervous system, correct?

\* \* \*

**A.** The understanding would be that at excessively high doses, it might penetrate the central nervous system, yes.

**Q.** And in fact, is that what two milligrams per kilogram is, an excessively high dose?

**A.** I do not recall the dose range, but that would seem not to be an excessively high dose.

(Harvey Dep. Tr. at 146:2-146:12; 146:14-146:20; *see also id.* at 144:21-145:3.)

21. And Dr. Owen was certainly not the first to hypothesize that centrally acting D<sub>2</sub>agonists have utility as anti-Parkinson’s agents—that correlation was recognized in the ‘860 patent as already well-established. (‘860 patent, col. 1, ll. 48-53; *see also* DTX 375.) So at best, Dr. Owen claims to be the person who applied known facts to a known scientific relationship and arrived at a hope—or “hypothesis,” as Dr. Owen calls it (Owen Dep. Tr. at 135:3-7)—that ropinirole would behave consistently with the known scientific relationship.

22. Dr. Owen's only other alleged contribution was to communicate his hypothesis to researchers at the University of Bradford, including Professor Brenda Costall, and ask them to test ropinirole for central effects.

**Q.** So when you first spoke with Professor Costall, did you direct her to run tests using this marmoset model on ropinirole?

**A.** What I recall asking Brenda Costall, or what I recall telling her was the nature of the hypothesis that I had formed, and that—gosh, I was going to say I hoped, I'm not quite sure what the right verb is there, *but I believed that her expertise would be greater than my expertise in order to confirm the validity of what was my hypothesis, and clearly, I went to her because I believed she had expertise that I didn't have myself. I was a cardiovascular guy.* I was referred to by my boss as a plumber, which is a fair comment if you think about it, it's about pumps and pipes.

(*Id.* at 71:10-72:2.) Dr. Owen admitted that he contacted the University of Bradford because they were the “experts” in neuropharmacology and he was not. (*Id.*) University of Bradford researchers selected, ran, and interpreted the tests on ropinirole for potential anti-Parkinson's activity and other central effects.

**Q.** In speaking with Professor Costall or any of the other Bradford researchers, *did you ever specify to them what tests should be run to test your hypothesis?*

**A.** *Not that I recall.* I make the distinction between presenting the hypothesis and wanting any data put in context with other effects. Let me stand back. *You go to experts for their expertise.* I don't then tell them, when I'm—my expertise is in cardiovascular pharmacology, *I don't tell them how to do their CNS experiments.*

**Q.** Before they ran their experiments, did they tell you what experiments they were going to run?

**A.** I don't recall that, I just don't recall this level of detail.

(*Id.* at 110:10-111:3.) The Bradford researchers prepared reports and sent them back to GSK.

**Q.** Who were the—the reports that were submitted by you and your team to Smith Kline, who particularly were they submitted to?

**A.** The first reports were submitted to Dr. David Owen, and subsequent reports to Mr. Roger Eden.

(Costall Dep. Tr. at 124:15-20.)

23. Contemporaneous GSK documents credit Bradford, not Dr. Owen, for finding the anti-Parkinson's effects of ropinirole. (*See, e.g.,* DTX 100 at GSK-REQ014480 (“Studies of the Central Nervous System (“CNS”) properties of SK&F 101468 conducted at the University of Bradford clearly demonstrated potential utility in Parkinson's Disease.”).) Similarly, GSK's August 1987 Draft Project Plan and Review document for the ropinirole project credits Bradford researchers—not Dr. Owen—with discovering the anti-Parkinson's potential of ropinirole. (DTX 28 at GSK-REQ013951 (“Evaluation of the CNS profile has been carried out in collaboration with the University of Bradford, U.K.; results suggest *anti-parkinson* ... activity.”).)

24. Until Professor Costall's research team had completed its experiments, GSK's documents described the work being done by the University of Bradford as research into the "CNS effects" of ropinirole generally, not its potential use in treating Parkinson's disease particularly. (*See, e.g.*, DTX 98 at GSK-REQ014412 ("Professor Naylor (Bradford) who is an expert on the CNS effects of dopamine-like compounds, will be consulted next week to determine the most appropriate experimental designs for the investigation of the neurobehavioral effects of SK&F 101468-A."); DTX 101 at GSK-REQ014399 ("Professors Costall and Naylor are being supplied with SK&F 101468 to study its CNS effects."); DTX 102 at GSK-REQ014385 ("Professors Costall and Naylor have been supplied with SK&F 101468-A and are investigating its CNS effects. Post-Meeting Note: A report on the results of these investigations has been received.")) No specific mention of Parkinson's disease is made. (*Id.*)

25. In September 1986, Dr. Costall submitted the Bradford researchers' first report to Dr. Owen directly. (DTX 35.) The report describes seven different experiments identified in the "Biological Data" section of the '860 patent and concludes that ropinirole had "anti-parkinson potential (although direct/indirect activity needs to be established)." (*Id.* at GSK-REQ001054.) Only after Dr. Costall's first report was received by Dr. Owen in September 1986 (DTX 102) did GSK's meeting minutes begin to discuss the possibility of developing ropinirole as a treatment for Parkinson's disease (DTX 100 at GSK-REQ014480):

The possible development of SK&F 101468 for CNS indications was discussed. Studies of the CNS properties of SK&F 101468 conducted at the University of Bradford clearly demonstrated potential utility in Parkinson's Disease. ...

The team were in favour of further assessing the potential utility of SK&F 101468 in Parkinson's Disease. ... Further evaluation of the effectiveness of SK&F 101468 in animal models of Parkinson's Disease would be needed to support clinical trials.

26. The '860 patent lists numerous test results showing ropinirole's use as an anti-Parkinson's agent. ('860 patent, col. 3, ll. 59-62, 67-68; col. 4, l. 61-col. 5, l. 6; col. 5, l. 45-col. 6, l. 53.) All of these tests were selected, run, and interpreted by Bradford, not Dr. Owen. (Owen Dep. Tr. at 110:10-111:3.) This evidence proves that, at most, Dr. Owen's alleged contribution consisted of his "hypothesis" that ropinirole's CNS effects might include anti-Parkinson's activity, while all of the work done to form a definite and permanent idea that ropinirole could be used to treat Parkinson's was done by others without Dr. Owen's direction.

27. One would search the record in vain for any contemporaneous evidence that it was Dr. Owen who first hypothesized that ropinirole could be used to treat Parkinson's disease. Indeed, Dr. Owen, a trained scientist, could not remember recording his alleged hypothesis in any document—not even a written communication to the University of Bradford researchers:

Q. Do you remember any document you may have created that described your hypothesis that ropinirole could be used to treat Parkinson's disease?

A. I don't remember producing a document.

(*Id.* at 65:2-6.) And GSK did not produce any such documents in this litigation.

28. But the record is replete with evidence of the contributions of others. Unlike Dr. Owen, Annette Wright, who conducted the experiments that led to the discovery of CNS effects, kept a laboratory notebook in which she noted her observations that rats showed “classic stereotyped sniffing” upon administration of ropinirole. (DTX 24 at GSK-REQ000386, 391.) That notebook does not mention Dr. Owen, and was instead witnessed by Mr. Eden. (*Id.* at GSK-REQ000209.) Mr. Eden likewise testified Ms. Wright, not Dr. Owen, explained to him that the observed stereotypy was “an indication that [ropinirole] was getting into the CNS.”

Q. Okay. And did Annette—what was the substance of Annette's explanation to you?

A. She said it was an indication that it was getting into the CNS.

(Eden Dep. Tr. at 74:20-75:1.) And it was Mr. Eden, not Ms. Wright, who informed Dr. Owen of ropinirole's central effects (*id.* at 80:15-19):

Q. Did you tell anyone else about Ms. Wright's findings of stereotypy in rats?

A. Yes.

Q. Who did you tell?

A. Dr. Owen.

29. Not surprisingly, Mr. Eden does not credit Dr. Owen with discovering that ropinirole had anti-Parkinson's effects (*id.* at 94:14-17)<sup>3</sup>:

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<sup>3</sup> Mr. Eden claims no credit for himself for coming up with the concept of using ropinirole to treat Parkinson's, and he has the unique perspective of having worked closely with Dr. Owen, Professor Costall, and Ms. Wright. In fact, by the time the Bradford researchers submitted their second set of  
(Continued...)

**Q.** Okay. Who first—to your knowledge, who first thought that ropinirole could be used to treat Parkinson’s disease?

**A.** I don’t know.

30. Likewise, as discussed above, the record details Professor Costall’s extensive testing of ropinirole in several animal models, applying her knowledge as an “expert” in CNS pharmacology. (*See* Owen Dep. Tr. at 71:10-72:2.) Notably, at least one experiment that Professor Costall conducted showed exactly the opposite of the observations made by Ms. Wright’s observations of “classic stereotyped ‘sniffing’” (DTX 24)—one of the two pieces of information that allegedly prompted Dr. Owen to come up with his hypothesis in the first place. As Professor Costall told Dr. Owen in the September 1986 report, ropinirole “failed to cause marked stereotypy in rat or mouse.” (DTX 35 at GSK-REQ001030.) After conducting seven different experiments, Professor Costall and the Bradford researchers came to the conclusion that ropinirole had “anti-parkinson potential (although direct/indirect activity needs to be established).” (*Id.* at GSK-REQ001054.) But if Dr. Owen is to be believed, Professor Costall’s thorough experiments did not advance the ball one iota from the starting point that Dr. Owen had given her—his alleged hypothesis that ropinirole was “a potential treatment for Parkinson’s disease.” (Owen Dep. Tr. at 114:21-115:15.)

**B. The ‘860 Patent Goes Far Beyond Dr. Owen’s Alleged Hypothesis.**

31. While Dr. Owen’s tenure on the ropinirole team ended by 1987 at the latest (Harvey Dep. Tr. at 81:10-22; 202:4-16), the ‘860 patent was not filed in the United States until a year later on May 19, 1988. (*See* ‘860 patent.) The ‘860 patent specification begins with a summary of the background knowledge in the field of treatments for Parkinson’s disease. (*Id.* at col. 1, ll. 8-44.) It describes the disease and acknowledges the well-known existing treatments for Parkinson’s disease, which include L-dopa and “post-synaptic dopamine agonists.” (*Id.*) The specification then describes the alleged “invention” in an effort to distinguish those prior art treatments. (*Id.* at col. 1, l. 54-col. 2, l. 3.)

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reports on ropinirole’s potential use as an anti-Parkinson’s agent, the reports were sent to Mr. Eden, not Dr. Owen. (Costall Dep. Tr. at 124:15-20.)

32. The '860 patent ends with three claims. (*Id.* at col. 6, l. 57-col. 8, l. 15.) All three claims are independent claims and all are directed to "a method of treatment of Parkinson's disease" by administering "an effective non-toxic amount" of a compound. (*See id.*) Claim 1 is directed to the method of using any of the at least 750 different compounds described in the specification, claim 2 is limited to the method using ropinirole, and claim 3 is limited to the method using ropinirole hydrochloride. (*Id.*) These claims define the scope of what Dr. Owen and GSK's patent attorneys told the USPTO that Dr. Owen had conceived, but they bear little relation to Dr. Owen's alleged hypothesis.

**1. The Disclosure Of "New" Compounds Not In The Prior Art '808 Patent And "New" Properties For Select '808 Patent Compounds.**

33. The '860 patent identifies a series of at least 750 compounds identified by a common structural formula that all supposedly are effective in treating Parkinson's disease. (*Id.* at col. 2, ll. 4-24.) Specific compounds within the series are identified by substituting the listed substituents into the generic formula. (*Id.*) While the '860 patent cites the earlier '808 patent as a source of the compounds claimed, not all the compounds described in the '860 patent are disclosed in the '808 patent, as GSK's chemistry expert acknowledged at trial (Trial Tr. at 515:1-10):

**Q.** Now, you know that some of these compounds that are claimed and described in the '808 patent can also be found or were included in the Claim 1 of the '860 patent. Correct?

**A.** Some of them are, yes.

**Q.** And some of these compounds that are recited and described in the '808 patent were not included in Claim 1 of the '860 patent. Correct?

**A.** That's correct. The '860 patent is a narrower genus than that of the '808 patent.

34. Conversely, only a small subset of the thousands of '808 patent compounds are claimed in the '860 patent as having anti-Parkinson's activity. (*Id.*; '860 patent col. 2, ll.4-24.) No explanation is provided—either in the '860 patent or elsewhere in the record—for why some '808 patent compounds were included while others were not, or why the selection of these compounds was attributed to Dr. Owen.

**2. The Alleged Discovery That 750 Pre-Synaptic Compounds Acted Post-Synaptically.**

35. The '860 patent credits Dr. Owen with discovering that the series of compounds identified in claim 1, including ropinirole, were not just pre-synaptic dopamine agonists, but also post-synaptic dopamine agonists:

certain indolone derivatives known in the art as pre-synaptic D<sub>2</sub> agonists having utility as cardiovascular agents [citing European equivalent of the '808 patent], are also post-synaptic D<sub>2</sub> agonists in the brain and hence are expected to have utility in the treatment of Parkinsonism.

('860 patent, col. 1, ll. 48-53.) Specifically, the patent credits Dr. Owen with discovering that the at least 750 different claimed compounds presumably all exhibit "post-synaptic D<sub>2</sub> agonist" activity in the brain. (*Id.*)

### 3. Claimed "Effective" Amounts And Supporting Data, Including Animal Testing.

36. The '860 patent claims "an effective non-toxic amount" for each of the compounds for treating Parkinson's disease. (*Id.* at col. 6, l. 67-col. 7, l. 1.) In support of these claims, the patent specification identifies specific dosage amounts for treating humans suffering from Parkinson's disease:

The daily dosage regimen for an adult patient may be, for example, an oral dose between 1 mg and 100 mg, preferably between 1 mg and 50 mg, or an intravenous, subcutaneous, or intramuscular dose between 0.1mg and 50 mg, preferably between 0.1mg and 15 mg, of the compound of structure (I) or a pharmaceutically acceptable salt thereof calculated as the free base, the compound being administered 1 to 4 times a day.

(*Id.* at col. 3, ll. 30-39.) The specification also cites animal testing in support of the alleged effective ranges.

(*Id.* at col. 5, ll. 46-col. 6, ll. 33.)

### 4. Biological Testing In Support Of Anti-Parkinson's Claims.

37. In support of the assertion that the at least 750 claimed compounds are useful for treating Parkinson's disease, the patent describes certain "biological data" including 10 different tests that were performed. (*Id.* at col. 3, l. 40.) *All* of these tests were performed with a single claimed compound—ropinirole hydrochloride. (*Id.* at col. 3, ll. 42-45.) None of the other 749 compounds were tested. (Owen Dep. Tr. at 131:13-19.) Two of the tests—test nos. 7 and 10—are described as being "a test for anti-Parkinson's activity." ('860 patent at col. 3, ll. 59-62, 67-68; col. 4, l. 61-col. 5, l. 6; col. 5, l. 45-col. 6, l. 53.)

### C. Dr. Owen's Testimony Is At Odds With The '860 Patent And His Declaration.

38. Like all U.S. patents, the application for the '860 patent included an identification of the inventors of the claimed subject matter and a declaration (DTX 97) from those named inventors acknowledging their legal duties relating to the legal document being prosecuted in their name. *See* 37 C.F.R. § 1.63. Indeed, in the

United States, patents are only issued to inventors, not companies, and it is the inventors and their representatives that owe duties of disclosure and candor to the USPTO. 37 C.F.R. § 1.56.

39. Dr. Owen was identified as the sole inventor of all of the subject matter claimed in the '860 patent application. (DTX 19 at GSK-REQ000539-554.) The application claims never materially changed. (*Id.*) Dr. Owen signed and GSK's attorneys filed a declaration in which he swore under penalty of perjury that he was the *sole inventor* of the claimed subject matter and that he had *reviewed and understood* the contents of his patent application (DTX 97):

I believe I am the original, first and sole inventor . . . of the subject matter which is claimed and for which a patent is sought on the invention entitled Medicament the specification of which is attached hereto.

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

40. Despite having signed this sworn declaration, Dr. Owen's deposition testimony was stunningly at odds with his patent application. Dr. Owen could not recall ever reviewing the patent application—even after spending multiple days preparing for his deposition with GSK counsel (Owen Dep. Tr. at 31:19-22):

**Q.** Do you remember if you reviewed the US patent application from which the 860 patent issued before that US application was filed?

**A.** I don't remember it as an absolute fact.

**1. Dr. Owen Disclaims Knowledge Of The 749 Claimed Compounds Other Than Ropinirole In The '860 Patent.**

41. When Dr. Owen was shown the '860 patent at his deposition, he admitted that he never considered whether any other compound might be used to treat Parkinson's disease—his sole focus was ropinirole.

**Q.** Do you remember ever hypothesizing that SK&F 89124 would be effective in treating Parkinson's disease?

**A.** I only ever hypothesised that ropinirole might be useful in treating Parkinson's disease.

(*Id.* at 135:3-7.) For example, he did not consider whether even SK&F 89124, the lead compound from which ropinirole was developed and one of the compounds identified in claim 1, could be used as an anti-Parkinson's agent. (*Id.*) Dr. Owen flatly repudiated the notion that he had any involvement with any compound other than ropinirole hydrochloride.

Q. But I believe what you said now is that *although there are a number of compounds that are described and claimed in this patent, you only developed a hypothesis as to one specific compound, and that's ropinirole*, was that accurate?

A. *That is absolutely what I've said all the way through*, and that is accurate.

(*Id.* at 131:13-19.) Moreover, Dr. Owen disavowed any involvement in determining what compounds other than ropinirole should be claimed, and pointed to GSK's patent attorneys as having identified the other 749 claimed compounds when they prepared his patent application (*Id.* at 131:20-132:3; 132:5-16):

Q. And my question then to you is: based on the information you had about ropinirole, would it be—would that information be sufficient to draw a hypothesis as to whether these other compounds within that general structure would be effective in treating Parkinson's disease?

\* \* \*

A. It is a matter for the legal department to determine how broadly they then choose to draft the patent. They drafted it, I didn't draft it, I'm very comfortable that they are very expert in the drafting of patents, so I have tried to tell you as reliably as I can what I did, and *this is what the legal department did by way of drafting* arising from that.

Q. And *that general structural formula in column 2 of the 860 patent, that's not something that you came up with, correct?*

A. *Oh, very definitely correct.*

## 2. Dr. Owen Disclaims The Distinction Between Pre- And Post-Synaptic D<sub>2</sub> Receptors.

42. Dr. Owen also rejected the notion that there was a distinction between post-synaptic D<sub>2</sub> agonists and pre-synaptic D<sub>2</sub> agonists, calling such a distinction an "absolute irrelevance," contrary to the arguments made on his behalf in the '860 patent to distinguish the prior art (*id.* at 192:13-17; 192:19-193:3):

Q. So you knew that it was—that ropinirole was a D<sub>2</sub> agonist, to you it didn't matter whether it had an effect on presynaptic D<sub>2</sub> receptors or postsynaptic D<sub>2</sub> receptors, in order to be effective for Parkinson's disease?

\* \* \*

A. In order to be effective in Parkinson's disease, the evidence that we have now is that it is an agonist at postsynaptic receptors, but this—*whether it's pre or postsynaptic, in my view, is an absolute irrelevance*. A D<sub>2</sub> agonist is a D<sub>2</sub> agonist for D<sub>2</sub> receptors regardless of their location.

He similarly rejected the '860 patent's distinction between expected D<sub>2</sub> agonist activity in the brain or at any other part of the body, flatly stating that "[i]f a compound is a D<sub>2</sub> agonist, [he] would expect it to be a D<sub>2</sub> agonist at D<sub>2</sub> receptors regardless of their anatomical location." (*Id.* at 191: 19-21.)

**3. Dr. Owen Had No Involvement Or Knowledge Of The Source Of The “Effective Dosages” Described In The ‘860 Patent.**

43. Dr. Owen explained he never considered any specific dosages (or “effective, nontoxic amounts” as referred to in claim 1) for the treatment of Parkinson’s disease.

**Q.** And as you said, *this statement that the dosage unit preferably contains from 1 to 50 milligrams, that’s not something that you contributed to this patent application, correct?*

\* \* \*

**A.** *I didn’t write that, I didn’t draft that.*

**Q.** That’s something that someone in the patent department did, correct?

**A.** Correct.

**Q.** And then if you go to the paragraph below that, the first sentence says: “The daily dosage regimen for an adult patient may be, for example, an oral dose of between 1 milligram and 100 milligrams, preferably between 1 milligram and 50 milligrams.” Do you see that?

**A.** Yes.

**Q.** That’s not information that you contributed to this 860 patent, correct?

\* \* \*

**A.** That’s correct.

**Q.** That’s something that someone in the patent department put in there?

\* \* \*

**A.** Correct.

**Q.** And just to be clear, *at the time you came up with your hypothesis that ropinirole could be used to treat Parkinson’s, you didn’t have a definite idea that there would be any particular effective dose in humans, correct?*

\* \* \*

**A.** *That’s correct.*

(*Id.* at 216:10-13; 216:15-217:7; 217:13-18; 217:20.) According to Dr. Owen, people in GSK’s patent department put all of the dosage information in his patent without any input from him. (*Id.*)

**4. Dr. Owen Had No Involvement In The Testing Cited In The ‘860 Patent.**

44. With respect to the biological tests cited in the ‘860 patent, as noted above, Dr. Owen did not select, perform, or interpret a single one. The tests, results, and interpretation of the tests for anti-Parkinsonism activity described in the ‘860 patent came directly from Bradford. Dr. Owen candidly acknowledged he would not assume to question the Bradford researchers’ judgment. (Owen Dep. Tr. at 71:10-72:2.) Yet nowhere in the ‘860 patent is there any mention of University of Bradford’s contribution or any disclosure of the University of Bradford reports that are the basis for the anti-Parkinson test data. (*See* ‘860 patent.)

**D. The '860 Patent Claims Compounds The Applicants and GSK Knew Were Inactive.**

45. The evidence at trial showed not only that Dr. Owen had not invented the concept of using any of the compounds other than ropinirole identified in claim 1 to treat Parkinson's disease, but also that some of the compounds identified in claim 1 would not work for that purpose. At trial, Dr. Long, an expert in dopamine agonist activity, testified that in his opinion, a number of compounds covered within the scope of claim 1 would not be active as D<sub>2</sub> agonists and, therefore, would not be effective in treating Parkinson's disease.

**Q.** Did you consider Claim 1 in connection with forming your opinions in this case?

**A.** Yes.

**Q.** Did you form any opinion about Claim 1?

**A.** Yes. There is compounds there that I wouldn't expect activity with.

**Q.** What do you mean you wouldn't expect activity with?

**A.** No activity at D-2 receptors, centrally or peripherally.

**Q.** What if anything would that relate to a method of treating Parkinson's disease?

**A.** Well, if they are inactive with D-2 receptors, they would be inactive for therapy with Parkinson's disease.

(Trial Tr. 219:8-20.)

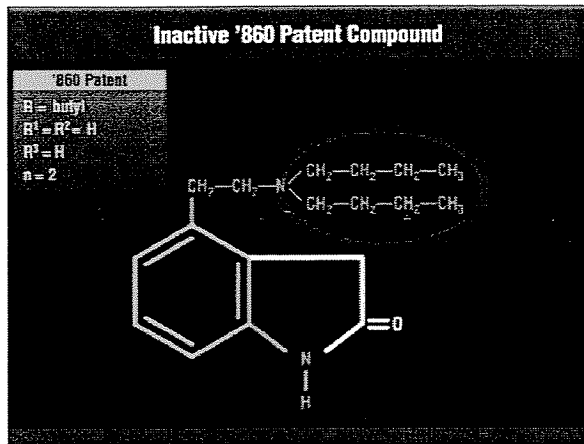
46. Dr. Long specifically pointed to two examples of compounds that he and others in the field would have expected to be inactive as D<sub>2</sub> agonists, but which are nonetheless identified in claim 1 as anti-Parkinson's agents.

**Q.** Dr. Long, can you point us to substitutions that you believe would render the claim, render the compound inactive?

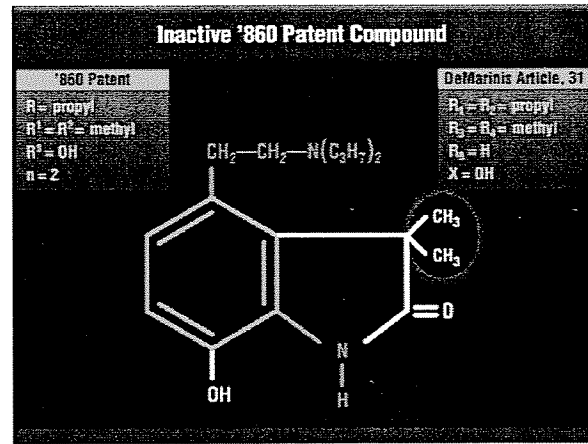
\* \* \*

**A.** One is on the nitrogen, we have the butyl substitutions, dibutyl, and I would expect this compound to be inactive. And also, over at R1, in the third position of the five-membered ring, alkyl substitutions are unfavorable for activity. And the dimethyl would be essentially inactive.

(*Id.* at 219:21-23; 220:3-8.) The structures of those compounds are reproduced below.



(DDX 10)



(DDX 11)

47. To support his opinion that these compounds were dopaminergically inactive and ineffective in treating Parkinson's disease, Dr. Long cited not only his own work but the work of others experienced in the field. With respect to the compound shown in DDX 11, Dr. Long specifically pointed to the DeMarinis article as showing the compound to be inactive as a D<sub>2</sub> agonist.

**Q.** Dr. Long, with the exhibit there in front of you [DDX 11], that compound, what is the basis for your view that it's inactive?

**A.** Published literature from SmithKline.

**Q.** Any particular published literature?

**A.** Yes. DeMarinis is a senior author.

(*Id.* at 222:12-17 (referring to DTX 56).) Neither Dr. Owen nor anyone else at GSK tested these compounds to prove they were dopamine agonists or effective as treatments for Parkinson's disease.

48. Second, Dr. Long also testified that, based on his own prior research and publications, which showed that D<sub>2</sub> agonist activity was consistently eliminated whenever a dibutyl group was added to the aminoethyl side chain of a potential dopamine agonist, he believed that the compounds identified in claim 1 in which the "R" substituent was a C<sub>4</sub> alkyl would be expected to be dopaminergically inactive (*id.* at 226:3-9):

**Q.** Would you please turn to Tab 18 in your binder, DDX-10. Is that an illustration that would assist your testimony in this case?

**A.** Yes. This would be one of the compounds claimed at Claim 1.

**Q.** It is your opinion that it is inactive?

**A.** Yes.

49. Specifically, Dr. Long pointed to a 1978 article (DTX 160) he co-authored with Professors Costall and Naylor—the very researchers at the University of Bradford who did all of the pharmacological testing of

ropinirole that is described in the '860 patent—to show that the compounds in claim 1 with a dibutylamino side chain would be inactive as D<sub>2</sub> agonists and, therefore, ineffective treatments for Parkinson's disease.

- Q. Well, if you know that ropinirole is active, why wouldn't this butyl compound be active?
- A. We don't know why. It's just the way it is. And we know that propyl substitutions on dopamine present is very favorable for activity. And when you replace the propyl groups with butyl groups, that would certainly be expected.
- Q. Have you seen this on different types of dopamine agonist compounds?
- A. No.
- Q. Have you seen this substitution on different types of—
- A. Oh, yes, many different types.
- Q. Did you in fact see one of those substitutions in an earlier article you revised?
- A. Yes. We saw one of them, you may not remember—but the one where we were talking about the catechol derivative, the dopamine derivative, it had a di-normal butyl and it was inactive, if you will remember.
- Q. If we could turn to Tab 5, which is DTX-160.
- A. Yes. This is the article.
- Q. That is your 1978 article?
- A. Yes.
- Q. Could you point us to the portion of the article you are referring to?
- A. This, referring to Table 1. And this would be Compound 4. So no inhibition, inactive. And notice the difference now. Remember, compound 3 was di-normal propyl and when we went from di-normal propyl to di-normal butyl, lost all activity.
- Q. Orientate us to which is di-normal butyl and which is di-normal propyl?
- A. No. 3 we were talking about normal is the di-normal propyl. And the di-normal butyl is Compound 4.
- Q. And based on this information, what, in your opinion, would one of ordinary skill in the art conclude about the dibutyl substitutions at the location you identified in Claim 1?
- A. *I would certainly expect them to be inactive. It would be a great discovery if you found a dibutyl that was active.*

(Trial Tr. 227:12-229:1.) While it might have been “a great discovery” to find that these dibutyl compounds were active as D<sub>2</sub> agonists and effective in treating Parkinson's disease, GSK has offered absolutely no evidence to suggest that anyone, much less Dr. Owen, ever tested any such compounds for that purpose.

50. GSK's pharmacology expert, Dr. Jenner, did not offer an opinion as to whether any of these other compounds identified in claim 1 could be used to treat Parkinson's disease, much less disagree with Dr. Long's opinion that at least the compounds mentioned above would not work for the claimed purpose.

51. While GSK's chemistry expert, Dr. Bartlett, testified on this topic, he admitted he had no experience working with or researching dopamine agonists and he could not offer any opinions related to pharmacology.

(*Id.* at 499:19-500:11.) Thus, he was not qualified to speak to whether particular compounds would or would not be active as D<sub>2</sub> agonists or effective as treatments for Parkinson's disease, and this Court accordingly

discounts his testimony on this issue. Notably, however, even Dr. Bartlett acknowledged that GSK's own researchers had characterized at least one compound identified in claim 1 as being "inactive" in GSK's standard assay for determining D<sub>2</sub> agonist activity, contrary to Dr. Bartlett's own unsupported opinions.

**Q.** And what GSK says in this paper is that [ ] Compound 31 of the DeMarinis paper was found to be inactive. Correct?

**A.** It says that it was inactive in which I understand to be a peripheral, an assay for peripheral activity. And I think you will have to ask somebody with more pharmacology background as to whether that proves that it's inactive for an application which would require central activity.

(*Id.* at 523:4-11.) In sum, the evidence showed that some of the compounds identified in claim 1 were dopaminergically inactive and would not be effective to treat Parkinson's disease, and that GSK researchers who worked on the compounds—including Dr. Owen—knew it.

52. No information is provided as to why some of the compounds disclosed in the prior art '808 and '944 patents were included in claim 1 of the '860 patent, while others were not. (*Id.* at 510:2-511:12; 515:1-10.) And the logic for including compounds from other sources is not explained, much less the reason for attributing to Dr. Owen the selection of those compounds as anti-Parkinson's treatments.

53. The disparity between the "official" story of conception told by the '860 patent and its prosecution documents (*see* '860 patent, DTX 19 ("'860 Patent Public Prosecution History"); DTX 312 (internal prosecution history)) and the story now told by Dr. Owen raises questions regarding the origin of the official story. Incredibly, GSK claims not to know and through extensive assertions of attorney-client privilege (*see* DTX 132, 136, 137, 138; Owen Dep. Tr. at 81:10-16), it substantially precluded discovery on the subject.

54. Thus, threshold questions remain as to: Who prepared the '860 patent application? Who determined which of the thousands of "indolone derivatives" in the prior art '808 patent should be included in claim 1 of the '860 patent? And who "invented" the concept of using the compounds identified in claim 1 of the '860 patent and not found in an earlier patent as treatments for Parkinson's disease?

**E. GSK Repudiated The Pre- And Post-Synaptic Distinction With Respect To Prior Art Agonists In The '860 Patent Foreign Counterpart And Never Corrected The '860 Patent.**

55. GSK itself has admitted that the '860 patent's statements characterizing the prior art D<sub>2</sub> agonist treatments for Parkinson's disease as acting "post-synaptically" ('860 patent, col. 1, ll. 36-38) were at odds

with statements in GSK's own prior art DeMarinis article (DTX 56) identifying the same compounds as acting "pre-synaptically." (See DTX 134.) The prior art DeMarinis article was not identified during the prosecution of the '860 patent. The European Patent Office ("EPO") initially rejected the European counterpart application to the '860 patent based on the discrepancy between what the DeMarinis article (DTX 56) states about the site of action of the prior art compounds and the characterization of those compounds in the '860 patent. (DTX 134.) The DeMarinis article describes these prior art D<sub>2</sub> agonists as *pre-synaptic* D<sub>2</sub> agonists—contradicting the '860 patent's description of those compounds. In other words, the distinction drawn in the '860 patent between pre- versus post-synaptic D<sub>2</sub> agonists to distinguish the prior art is false.

56. To overcome the EPO's rejection, GSK was forced to acknowledge that statements in the European patent application that were identical to the statement in the '860 patent characterizing the prior art treatments for Parkinson's disease were, in fact, "an error." (DTX 133 at GSK-REQ018298.) Thus, when the misleading distinction between pre-synaptic and post-synaptic D<sub>2</sub> agonists was held up to scrutiny by the EPO, GSK acknowledged that its statements about the prior art dopamine agonists in the '860 patent were false and misleading. The '860 patent had already issued by the time of GSK's acknowledgement; however, at no time did GSK attempt to correct the '860 patent through reissue or otherwise.

57. Perhaps more importantly, Dr. Owen knew the pre-/post-synaptic distinction drawn in the '860 patent was not relevant to whether ropinirole would be expected to be effective in treating Parkinson's disease. (Owen Dep. Tr. at 191:11-14.) Dr. Owen's understanding was that there was no pharmacological distinction between "pre-" and "post-" synaptic receptors—[i]f it's an agonist for D<sub>2</sub> receptors, it will be an agonist for D<sub>2</sub> receptors, and whether they are presynaptic or postsynaptic is a piece of anatomy, not a piece of pharmacology." (*Id.*) Far from being the critical distinction it is portrayed to be in the '860 patent, Dr. Owen admitted the distinction was "an absolute irrelevance." (*Id.* at 192:19-193:3.)

58. Despite Dr. Owen's and GSK's knowledge that the pre- and post-synaptic distinction was an absolute irrelevance, GSK never notified the USPTO of this irrelevance or corrected the patent.



**F. GSK's Failure Or Refusal To Identify The Source Of Information In The '860 Patent.**

59. To ascertain the identify of the relevant persons involved in preparing the patent application for the '860 patent, Teva served an interrogatory seeking the identity of all persons involved in prosecuting the application for the '860 patent. In response, GSK identified only two individuals, Vincent L. Fabiano and Peter J. Giddings, Ph.D. (DTX 140 at Response to Interrogatory No. 2.)

60. In response to Teva's Rule 30(b)(6) Notice directed to the same subject, GSK represented that it had no further information in response to the topic and thus was unwilling to provide a witness. (May 30, 2006 Ltr. from M. Gordon to C. Brahma at 2 ("We are not aware of any current GSK employees [other than Mr. Giddings] having any relevant, personal knowledge about the filing or prosecution of the '860 patent.")) Mr. Giddings, a patent attorney in the UK involved in the ropinirole project, subsequently was deposed. However, like Dr. Owen, he claimed to have no recollection of the events despite three days of preparation with GSK's attorneys. (*See, e.g.*, Giddings Dep. Tr. at 58:22-59:4; 59:10-13.) Yet it is abundantly clear— notwithstanding Mr. Giddings' and Dr. Owen's faltering memories—that there was significant legal activity surrounding the preparation and prosecution of the '860 patent application, including many different activities identified in GSK's privilege logs. (*See* DTX 132, 136, 137, 138.)

61. At bottom, GSK's inability—whether real or feigned—to identify specific individuals responsible for the preparation and prosecution of the '860 patent cannot be a basis for it to avoid inequitable conduct. That information is solely under GSK's control. Where, as here, the evidence shows false and misleading statements were made in the patent and during its prosecution, GSK cannot rely on evidence from the specific individuals responsible for those actions—much less speculation about what those witnesses might have said—where GSK alone could provide it and chose to withhold that evidence during discovery. *Tracinda Corp. v. DaimlerChrysler AG*, 362 F. Supp. 2d 487, 513 (D. Del. 2005) ("[t]he attorney client privilege should not be used as both a sword and a shield.")

**III. CONCLUSIONS OF LAW**

62. During the trial, Teva and GSK presented live witness testimony primarily directed to the issue of invalidity of the '860 patent, although some of the testimony of Teva's pharmacology expert, Dr. John Long,

GSK's chemistry expert, Dr. Paul Bartlett, and pharmacology expert, Dr. Peter Jenner, also related to one of the grounds for finding inequitable conduct raised by Teva.

63. As a legal matter, even though some of the factual issues involved in Teva's invalidity and inequitable conduct defenses may overlap, the two defenses are independent and the elements and standards of proof for the two defenses are completely different.

64. Based on the evidence of record, including the evidence presented at trial as well as the exhibits and deposition testimony presented post-trial by agreement of the parties, this Court finds clear and convincing evidence that the '860 patent was procured through two different acts of inequitable conduct. Each of these acts provides an independent reason why this Court cannot enforce the '860 patent against Teva. First, Dr. Owen and GSK's patent attorneys intentionally misled the USPTO when they submitted Dr. Owen's inventorship declaration, which stated that he was the "sole inventor" of the entire claimed invention of the '860 patent. (DTX 97.) Second, Dr. Owen and GSK's patent attorneys committed inequitable conduct by including statements within the '860 patent itself suggesting that all of the dopamine agonists previously known in the art were active as "post-synaptic D2 agonists in the brain." ('860 patent, col. 1, ll. 48-53.)

65. Inequitable conduct is an equitable defense to an assertion of patent infringement. *See Nobelpharma AB v. Implant Innovations, Inc.*, 141 F.3d 1059, 1070 (Fed. Cir. 1998). The defense arises from the duties owed by applicants to the USPTO during the *ex parte* prosecution of patent applications. Because of the limited resources of the USPTO, and the lack of an adversarial process, the USPTO must be able to rely on an applicant's good faith and candor during patent prosecution. *Molins PLC v. Textron, Inc.*, 48 F.3d 1172, 1178 (Fed. Cir. 1995). Many different acts can constitute a breach of an applicant's duties to the USPTO, including withholding prior art, failure to disclose the interest of declarants, misrepresenting the applicant's entitlement to pay lowered USPTO fees, and, most relevant to Teva's allegations, making false or misleading representations or omitting information that should be disclosed to the USPTO. *See id.* at 1179-80.

66. To determine whether the conduct of Dr. Owen and GSK's patent attorneys constituted inequitable conduct in this case, the Court must answer two questions: (1) did these individuals "fail[] to disclose material information" related to the patentability of the claims of the '860 patent in breach of the duty of candor or

disclosure, and (2) did they do so with an “intent to mislead the PTO.” *See Bristol-Myers Squibb Co. v. Rhone-Poulenc Rorer, Inc.*, 326 F.3d 1226, 1233-34 (Fed. Cir. 2003).

67. Notably, the applicant’s misrepresentation or withholding of information need not be a but-for cause for the patent application being issued—information may be material to patentability of the ‘860 patent even if disclosure of the correct information would not have reversed the USPTO’s decision to issue the ‘860 patent. *See Molins PLC*, 48 F.3d at 1179-80 (“Nor is a reference immaterial simply because the claims are eventually deemed by an examiner to be patentable thereover.”).

68. The intent necessary to prove inequitable conduct, an equitable defense as opposed to an affirmative claim, is different than—and less than—that for common law fraud or antitrust. *Nobelpharma*, 141 F.3d at 1070. Moreover, intent need not be shown by direct evidence. *See Hoffman-LaRoche*, 323 F.3d at 1371 (“Intent, however, is typically proved inferentially, ... and a finding of intent does not require a confession from the stand by the inventor or the prosecuting attorney,”). Intent “must generally be inferred from the facts and circumstances surrounding the applicant’s overall conduct.” *Paragon Podiatry Lab., Inc. v. KLM Labs., Inc.*, 984 F.2d 1182, 1189-90 (Fed. Cir. 1993) (holding on summary judgment that “[s]moking gun evidence is not required in order to establish an intent to deceive”). This is particularly true where, as here, the applicant offers no “credible explanation” for its or its employees withholding of material information, and instead asserts attorney-client privilege. *Bruno*, 394 F.3d at 1354. In such cases, “an intent to deceive is generally inferred from the facts and circumstances ... .” *Id.*

69. Once a threshold level of materiality and intent has been shown, the Court balances “materiality and intent in light of all the circumstances to determine whether the applicant’s conduct is so *culpable* that the patent should be held unenforceable.” *Ferring B.V. v. Barr Labs., Inc.*, 437 F.3d 1181, 1186 (Fed. Cir.), *cert. denied*, 127 S. Ct. 515, (2006) (emphasis in original). “The more material the conduct, the less evidence of intent will be required in order to find that inequitable conduct has occurred.” *PerSeptive*, 225 F.3d at 1319.

70. The duty of candor and disclosure is not limited to just the named inventors and identified attorneys. Rather, anyone substantively involved in the preparation of the patent application or prosecution of the patent owes these duties to the USPTO. *See Molins PLC*, 48 F.3d at 1178 n.6 (duties “rest[] on the inventor, on each

attorney or agent who prepares or prosecutes an application and on every other individual who is substantively involved in the preparation or prosecution of the application and who is associated with the inventor” or the assignee). Here, Teva has specifically identified Dr. Owen, the sole named inventor of the ‘860 patent, and GSK’s patent attorneys responsible for drafting and prosecuting the application for the ‘860 patent. It is well-established that all of these individuals owe a duty of disclosure to the USPTO. *Id.* Moreover, unlike an action to correct inventorship under 35 U.S.C. § 256, there is no requirement that Teva specifically identify the individuals who committed inequitable conduct in order to raise such a defense.

**A. The ‘860 Patent Is Unenforceable For Inequitable Conduct For Failure To Disclose The Proper Inventors And Information Related To Inventorship.**

71. As is required for all U.S. patent applications, the application for the ‘860 patent was filed with a declaration identifying the inventor(s) of the inventions claimed therein. (DTX 97.) In his declaration of inventorship for the ‘860 patent, Dr. Owen swore under penalty of perjury that he was the “original, first and sole inventor . . . of the subject matter which is claimed” in the ‘860 patent. (*See id.*; Finding ¶ 39.) The record clearly shows that Dr. Owen was mistaken to take credit for inventing the entire invention claimed in the ‘860 patent for the reasons set forth below.

72. Under U.S. patent law, the inventor(s) “is the person or persons who conceived the patented invention.” *C.R. Bard, Inc. v. M3 Sys., Inc.*, 157 F.3d 1340, 1352 (Fed. Cir. 1998). “Conception,” in turn is defined as “the ‘formation in the mind of the inventor, of a definite and permanent idea of the complete and operative invention, as it is hereafter to be applied in practice.’” *Amgen, Inc. v. Chugai Pharm. Co.*, 927 F.2d 1200, 1206 (Fed. Cir. 1991). “Conception is complete when the idea is so clearly defined in the inventor’s mind that only ordinary skill would be necessary to reduce the invention to practice, without extensive research or experimentation.” *Burroughs Wellcome Co. v. Barr Labs., Inc.*, 40 F.3d 1223, 1228 (Fed. Cir. 1994). Conversely, “[a] conception is not complete if the subsequent course of experimentation, especially experimental failures, reveals uncertainty that so undermines the specificity of the inventor’s idea that it is not yet a definite and permanent reflection of the complete invention as it will be used in practice.” *Id.* at 1229.

73. Where two or more people each contribute to the conception of a claimed invention, they must be named as joint inventors. 35 U.S.C. § 116 provides, in pertinent part:

When an invention is made by two or more persons jointly, they shall apply for a patent jointly and each make the required oath, except as otherwise provided in this title. Inventors may apply for a patent jointly even though (1) they did not physically work together or at the same time, (2) each did not make the same type or amount of contribution, or (3) each did not make a contribution to the subject matter of every claim of the patent.

74. While the Court has laid out the standard for determining inventorship under U.S. patent law, it is important to note that this Court has not been asked to decide, nor does it decide, whether the inventors of the ‘860 patent were properly named. Rather, this Court has only been asked to decide whether information was misrepresented or withheld by Dr. Owen or GSK’s patent attorneys, whether that information would have been material to a reasonable patent examiner’s determination of patentability, and specifically, inventorship, if the information had been correctly disclosed; and whether the misrepresentation or omission was made with the intent to deceive the USPTO. *See PerSeptive*, 225 F.3d at 1322 (“whether the inventorship of the patents as issued is correct does not determine the materiality of the statements [about inventorship] in this case, just as whether concealed prior art would actually invalidate the patent is irrelevant to materiality.”).

75. The process for determining who the proper inventors are for a patent involves two steps: (1) construing the claims of the asserted patent; and (2) “compar[ing] the alleged contributions of each asserted co-inventor with the subject matter of the properly construed claim to then determine whether the correct inventors were named.” *Eli Lilly & Co. v. Aradigm Corp.*, 376 F.3d 1352, 1360 (Fed. Cir. 2004). Here, the parties had previously agreed to the proper construction of the three patent terms potentially in dispute, and the Court entered an order accepting the parties’ stipulated construction of these terms. (2/23/2006 Stip.). Therefore, the first step to determine inventorship is not necessary. *See Eli Lilly*, 376 F.3d at 1360. Thus, the Court turns to the second step of the inquiry and evaluates whether the evidence presented shows that individuals other than Dr. Owen made contributions that were “not insignificant in quality” to the conception of any invention claimed in the ‘860 patent and that these other individuals “ha[d] some open line of communication during or in temporal proximity to their inventive efforts.” *Id.* at 1358-59.

**1. The Applicants Failed To Disclose That Dr. Owen Was Not The Sole Inventor Of Claim 3 Of The '860 Patent.**

76. To have conception, the inventor(s) must have a “definite and permanent idea of the complete and operative invention, as it is hereafter to be *applied in practice*.” *Amgen, Inc. v. Chugai Pharm. Co.*, 927 F.2d 1200, 1206 (Fed. Cir. 1991). Conception is not complete if “extensive research or experimentation” would be needed to reduce the invention to practice. *Burroughs*, 40 F.3d at 1228.

77. Against this standard, either (1) Dr. Owen’s formation of his “hypothesis” that ropinirole may be useful to treat Parkinson’s disease was not sufficiently definite to constitute conception of claims 2 and 3 of the ‘860 patent, or (2) the invention was conceived by his GSK co-worker before he formed his “hypothesis.”

**a. If Claim 3 Is Valid, The University of Bradford Researchers Are Necessarily Co-Inventors.**

78. At trial in the context of invalidity, GSK contended that merely knowing that a compound was a centrally acting D<sub>2</sub> agonist was not enough to give a person of ordinary skill in the relevant field a reasonable expectation that the compound was a potential anti-Parkinson’s agent.

**Q.** Doctor, you would also agree that if a compound is a post-synaptic D<sub>2</sub> agonist in the brain, it would be expected to have utility in the treatment of Parkinson’s disease. Correct?

**A.** At this time it would be expected that a drug which was a D<sub>2</sub> post-synaptic agonist in the brain would be useful in the treatment of Parkinson’s disease, at this time.

**Q.** But you would agree that if a compound is a post-synaptic D<sub>2</sub> agonist for the brain, it would be expected to have utility in the treatment of Parkinson’s disease. Correct?

**A.** I would agree with you at this time that that was the case.

(Trial Tr. at 603:17-604:4.) Yet this is the only thing that Dr. Owen claims to have contributed to the conception of the inventions claimed in the ‘860 patent, based solely on his understanding from the prior art that ropinirole was a peripheral D<sub>2</sub> agonist and the observation from Ms. Wright’s experiments that ropinirole had dopaminergic effects in the CNS. (Owen Dep. Tr. at 114:21-115:15; Finding ¶13.)

79. The Court has already accepted GSK’s invalidity position. Applying the same finding to the inequitable conduct issue, the inventors of claim 1 of the ‘860 patent appear to be the University of Bradford researchers, including Dr. Costall, who first conducted experiments directed to determining whether ropinirole exhibited anti-Parkinson’s activity. (*Id.* at 110:10-111:3.) Dr. Owen did not run or oversee these tests. (*Id.*) Dr. Owen was not even involved with the ropinirole project when the final conclusive test data

was provided to GSK—Mr. Eden had taken his place by then. (*Id.* at 218:7-219:5; DTX 36, 37.) Dr. Owen particularly sought out Professor Costall’s research group because of their specialized expertise in running tests related to Parkinson’s disease treatments. (Owen Dep. Tr. at 71:10-72:2.)

80. Dr. Owen’s “hypothesis” did not constitute conception of claim 3, because the course of research following Dr. Owen’s alleged conception “reveal[ed] uncertainty that so undermine[d] the specificity of the inventor’s idea that it [wa]s not yet a definite and permanent reflection of the complete invention as it w[ould] be used in practice.” *Burroughs*, 40 F.3d at 1229. The experimental work required to turn Dr. Owen’s “hypothesis” into Professor Costall’s definite and permanent idea that ropinirole had “anti-parkinson potential” was both extensive and specialized. (DTX 35 at GSK-REQ001054.) Indeed, all of the experimental results reported in the ‘860 patent specification as supporting the claimed invention were performed by the Bradford researchers. (Owen Dep. Tr. at 221:11-15.) The Bradford researchers selected, performed, and interpreted the tests showing ropinirole hydrochloride was an effective anti-Parkinson’s agent and reported those results to Dr. Owen. (DTX 35; Owen Dep. Tr. at 110:10-20.)

81. Moreover, the University of Bradford researchers memorialized their findings in a series of reports that were provided to GSK. (*See, e.g.*, DTX 35 at GSK-REQ001030-1.) At least one of these reports, dated September 1986 and prepared for Dr. Owen himself, identified ropinirole’s anti-Parkinson’s potential based on experimental results obtained. (*Id.*) This report predates the priority filing date for ‘860 patent and is the first written document of record that mentions the potential use of ropinirole to treat Parkinson’s disease. And only after GSK received that report did GSK even begin to mention the possibility of using ropinirole to treat Parkinson’s disease in its internal meeting minutes and reports. (Finding ¶ 25.)

82. The extent of the work of the researchers at Bradford and the extent of GSK’s reliance upon that work in preparing its ‘860 patent application strongly suggests that these experiments were more than routine. Indeed, the cornerstone of Dr. Owen’s hypothesis—Ms. Wright’s incidental observation of stereotypy in rats given ropinirole—was undercut by the further testing of the Bradford researchers, as reported in the ‘860 patent itself. (‘860 patent, col. 4, ll. 28-30 (“At doses of 1.0, 10.0 and 100 mg/kg i.p. Compound A caused no dose dependent stereotypies in the mouse or rat ...”).) Far from routine work for a person of ordinary skill

in the art, the research conducted by Dr. Costall and her research group was essential to turning Dr. Owen's "prospective hope" that ropinirole might exhibit anti-Parkinson's activity based on its exhibiting other CNS effects into a definite and permanent idea that constituted conception of the inventions of claims 2 and 3. *See Burroughs*, 40 F.3d at 1229 ("A conception is not complete if the subsequent course of experimentation, especially experimental failures, reveals uncertainty that so undermines the specificity of the inventor's idea that it is not yet a definite and permanent reflection of the complete invention as it will be used in practice.").

83. Where, as here, the claims recite a specific biological result—treatment of Parkinson's ('860 patent, col. 1, l. 3)—it is well-established that the mere hope of obtaining that result was insufficient to qualify as conception of the claimed invention. *See Hitzeman v. Rutter*, 243 F.3d 1345, 1356-57 (Fed. Cir. 2001) (finding "the critical deficiency is that [the putative inventor] specifically claimed the result of a biological process ... with no more than a hope" the result would be achieved and that "[s]uch a bare hope is insufficient to establish conception."); *Alpert v. Slatin*, 305 F.2d 891, 894 (C.C.P.A. 1962) ("If after the claimed conception date extensive research was found necessary before achieving minimum satisfactory performance, obviously the mental embodiment of that date was a mere hope or expectation, a statement of a problem, but not an inventive conception."). And unlike the circumstances in *Burroughs Wellcome*, where the inventors had at least produced a draft application evidencing their conception before seeking the aid of others to test their ideas, 40 F.3d at 1230, in this case, there is not a single document that attributes the idea of using ropinirole to treat Parkinson's to Dr. Owen (*see* Owen Dep. Tr. 156:14-21), while several GSK documents attribute that idea to the Bradford researchers. (*See, e.g.*, DTX 100.) *See Amax Fly Ash Corp. v. United States*, 514 F.2d 1041, 1049 (Ct. Cl. 1975) (lack of documentation linking putative inventor to claimed process was evidence of no conception).

84. Moreover, Dr. Owen explained he never conceived of any particular "effective nontoxic amount" of ropinirole to be administered to a patient with Parkinson's disease, as required in all three claims of the '860 patent. (Owen Dep. Tr. at 217:14-18; 217:20.) According to Dr. Owen, all of the dosage information in his patent was inserted into the patent by attorneys in GSK's patent department without any input from him. (*Id.* at 216:10-13; 216:15-217:7; 217:9-11; 217:13-18; 217:20.) Based on Dr. Owen's testimony, he at least did

not conceive of the “effective nontoxic amount” limitation of the claims. (*Id.*) To the extent this information was actually placed in the patent specification by a GSK patent attorney (*see* Finding ¶ 43) based upon the animal testing doses used by the Bradford researchers, this further supports the conclusion that the Bradford researchers’ contribution to conception was significant enough to make them co-inventors.

85. Given these facts, the Court concludes that Professor Costall and/or others at Bradford likely should have been named as joint inventors, if not sole inventors, of the ‘860 patent, and, at the very least, information about the Bradford researchers’ involvement in the development of the claimed invention should have been fully disclosed to the USPTO. By not joining Professor Costall or other Bradford researchers as inventors of the ‘860 patent and, instead, submitting Dr. Owen’s declaration affirmatively misrepresenting his “sole inventor[ship],” Dr. Owen and the GSK attorneys breached their duties of disclosure to the USPTO.

**b. Annette Wright Was Improperly Omitted As A Co-Inventor.**

86. Furthermore, even if this Court were to find that the idea that ropinirole will exhibit anti-Parkinson’s activity was inherent upon the discovery that it exhibited effects in the CNS, then Ms. Wright should have been named as either the sole inventor or a joint inventor. (*See* Finding ¶ 20.) Other than Dr. Owen’s deposition testimony, all of the evidence of record suggests that Ms. Wright was the first person to discover that ropinirole exhibited these central effects. (Finding ¶¶ 20, 28.) For example, Ms. Wright’s laboratory notebook, which was contemporaneously witnessed by her supervisor, Roger Eden, notes her observations of “classic stereotyped ‘sniffing,’” a CNS effect associated with D<sub>2</sub> agonists. (DTX 24 at GSK-REQ000386, 391.) Mr. Eden corroborated Ms. Wright’s discovery of central effects prior to Dr. Owen, noting that Annette Wright, not Dr. Owen, first told him that ropinirole had CNS effects and that he had relayed Ms. Wright’s experimental observations to Dr. Owen himself. (Eden Dep. Tr. at 74:20-75:1; 80:15-19.) By all accounts, no one at GSK, including Ms. Wright, expected to find central effects when she ran her tests. (Harvey Dep. Tr. at 48:4-6, 48:13-15.) Accordingly, if the “invention” of the ‘860 patent is the discovery that ropinirole acts centrally, then Ms. Wright, not Dr. Owen, is a proper co-inventor, if not the sole inventor. By itself, this evidence casts serious doubt on Dr. Owen’s contention that he was the first to “hypothesize” that ropinirole could be used to treat Parkinson’s.

87. And even if Dr. Owen's hypothesis was part of the conception of the claimed invention, in light of the reasoning of the '860 patent and the Gallagher article that it cites, Ms. Wright's discovery of central effects upon administering ropinirole would have been totally unexpected to a person of ordinary skill in the art. Thus, if the '860 patent's characterization of what was known in the prior art about ropinirole is accepted as true, then Ms. Wright made a significant contribution to conception—as Dr. Owen himself acknowledges, her observations were a critical piece of information that was (according to GSK) not available in the prior art. Dr. Owen and GSK's patent attorneys breached their duties to the USPTO by not disclosing Ms. Wright's significant contribution to conception, failing to join her as an inventor of the '860 patent, and, instead, submitting Dr. Owen's declaration in which he misrepresented that he was the sole inventor. (DTX 97.)

## 2. The Applicants Failed To Disclose The Proper Inventors Of Claim 1.

88. Teva also alleges that GSK committed inequitable conduct by not disclosing the proper inventors for claim 1 of the '860 patent. Even though GSK no longer asserts that claim 1 is infringed by Teva's ANDA filing, the inequitable conduct defense and counterclaim are still relevant. Inequitable conduct that is material to the patentability of *any* portion of a patent or claim makes the *entire patent* unenforceable. *Praxair, Inc. v. ATMI, Inc.*, 445 F. Supp. 2d 473, 478 (D. Del. 2006) ("If it is established that a patent applicant engaged in inequitable conduct with respect to one claim, then the entire patent application is rendered unenforceable."); *see also Pharmacia Corp. v. Par Pharm., Inc.*, 417 F.3d 1369, 1374-75 (Fed. Cir. 2005) ("This court has held that a finding of inequitable conduct in the acquisition of even a single claim of a patent renders the remaining claims of that patent unenforceable, even those without the taint of inequitable conduct."). While GSK withdrew its assertion that Teva infringed claim 1 of the '860 patent (*see* 6/23/06 Stip. (D.I. 60) ¶ 1), GSK originally asserted those claims in this litigation and they remain a part of the '860 patent, as does the taint arising from any inequitable conduct associated with the withdrawn claims. *See, e.g., Bristol-Myers*, 326 F.3d at 1236-37 (holding that nondisclosure of article constituted inequitable conduct, even though the article was considered during reissue proceedings and claims were ultimately allowed).

89. A party cannot avoid the consequences of its inequitable conduct by picking and choosing the claims it wishes to assert in litigation. In fact, a patent may be held unenforceable for inequitable conduct on the

basis of inequitable conduct that occurred in an entirely different but related patent. *See, e.g., Consolidated Aluminum v. Foseco Int'l Ltd.*, 910 F.2d 804, 812 (Fed. Cir. 1990).

90. Claim 1 is broader than claim 3 insofar as it covers the use of any one of at least 750 different compounds—not just ropinirole hydrochloride—for the treatment of Parkinson's. ('860 patent, col. 2, ll. 4-24.) Despite Dr. Owen's declaration that he alone had invented the concept of using all of these compounds to treat Parkinson's, he testified repeatedly and unequivocally that the scope of his research and conception was limited to the use of one compound—ropinirole (and its hydrochloride salt)—as a potential treatment for Parkinson's. (*See, e.g.* Owen Dep. Tr. at 131:13-19; *see* Finding ¶41.) Based on Dr. Owen's testimony, it is clear that he alone did not conceive of the entire scope of claim 1, and, therefore could not have been the sole inventor of the '860 patent. By affirmatively representing that he was the sole inventor, Dr. Owen and GSK's attorneys withheld the information that Dr. Owen had not conceived of all of the invention(s) claimed and deterred the USPTO from inquiring into the identity of the proper inventors. This establishes that Dr. Owen and GSK's attorneys breached their duty of disclosure to the USPTO.

91. As for who did include these other compounds within the scope of claim 1 of the '860 patent, Dr. Owen testified that GSK's attorneys included that information within the scope of the claims. (Owen Dep. Tr. at 121:1-7, 121:13-16; 131:20-132:3; 132:5-16; Finding ¶41.) Dr. Owen had been designated as GSK's Rule 30(b)(6) witness on the subject of the "conception and reduction to practice (if any) of the claims of the ['860 patent] and the development of the subject matter claimed in United States Patent No. ... 4,824,860 ... from conception up until the time of the filing of the respective application[] from which the ['860 patent] issued." (Owen Dep. Tr. at 7:14-8:12; DTX 41.) Dr. Owen's testimony on this issue relates to the conception of the invention and is, therefore, binding on GSK and GSK cannot, to the extent it has even attempted to do so, offer evidence to the contrary. Therefore, the Court concludes that at least one GSK patent attorney involved in the application for the '860 patent—not Dr. Owen—was, in fact, the person who conceived of the portion of claim 1 relating to compounds other than ropinirole. GSK should have identified this attorney as a joint inventor of the '860 patent. More to the point for purposes of analyzing the inequitable conduct issues before the Court, the GSK patent attorneys and Dr. Owen knew of the role played by this drafting attorney in

the conception of the claimed invention, yet took affirmative steps to conceal this information by submitting Dr. Owen's invention taking credit as the "sole inventor" for the entire claimed invention. (DTX 97.)

92. It does not matter whether it was "reasonable" to draft a genus claim like claim 1 of the '860 patent, as GSK argues. GSK's argument amounts to little more than the contention that Dr. Owen or a person of ordinary skill in the art *could have* thought of the rest of the claimed invention. But the Federal Circuit has made clear that, "[f]or conception, we look not to whether one skilled in the art could have thought of the invention, but whether the alleged inventors *actually* had in their minds the required definite and permanent idea." *Burroughs*, 40 F.3d at 1232. See *In re Mantell*, 454 F.2d 1398, 1402 (C.C.P.A. 1972) (conception of species insufficient as conception of genus unless there exists "a basis for a reasonable inference of possession of the generic invention"); *Bosies v. Benedict*, 27 F.3d 539, 542-43 (Fed. Cir. 1994) (no conception of genus without evidence that inventor himself had definite idea of all compounds within genus).

93. Moreover, as a factual matter, GSK's contention must fail for two reasons. Fundamentally, GSK's contention rests on the premise that a person of ordinary skill in the art, including Dr. Owen, would be able to look at compounds known in the prior art to be pre-synaptic, peripheral D<sub>2</sub> agonists and form an expectation that these other compounds would behave like ropinirole in exhibiting post-synaptic, central effects and, specifically, anti-Parkinson's activity. But that is exactly the opposite of what GSK argued at trial in opposing Teva's invalidity arguments. And Dr. Owen said that he himself would have no such expectation about the activity of other compounds. (Owen Dep. Tr. at 134:1-10 (confirming that one would need to run the types of tests run by the Bradford researchers with ropinirole before one could say they had a "potential activity to treat Parkinson's disease.")) As a result, what is clear from Dr. Owen's own testimony is that one of GSK's patent attorneys, not he, selected these other compounds for inclusion in claim 1 of the '860 patent. (See Finding ¶ 41.) Moreover, GSK's medicinal chemistry expert, Dr. Bartlett, testified that not all of the compounds described in claim 1 of the '860 patent were described in either of the prior art '808 or '944 patents. (Trial Tr. at 515:1-10, 510:2-511:12; Finding ¶ 52.) And the '860 patent discloses no basis for how these other compounds were selected. (See '860 patent.) Therefore, to the extent GSK's argument regarding the reasonableness of the genus claim is even relevant to the issue of inventorship, the Court rejects it.

**3. Dr. Owen's Affirmative Misrepresentation Of Sole Inventorship Was Material To The Patentability Of The '860 Patent Claims.**

94. Having concluded that Dr. Owen and GSK's patent attorneys breached their respective duties of disclosure to the USPTO, the Court now considers whether Dr. Owen's declaration statement taking credit for "sole inventorship" of the claimed inventions of the '860 patent was material to patentability of those claims. This issue has been addressed by the Federal Circuit, which left no doubt that "[a]s a critical requirement for obtaining a patent, *inventorship is material.*" *PerSeptive*, 225 F.3d at 1321-22. The patent statute only permits patents to be issued in the names of the original inventors. 35 U.S.C. § 102(f); Chisum on Patents § 2.01. "Examiners are required to reject applications under [] § 102(f) on the basis of improper inventorship." *PerSeptive*, 225 F.3d at 1321. Inventorship is material not only because Congress says so, but also because it is the inventors who bear the duties of disclosure and candor to the USPTO. *Molins PLC*, 48 F.3d at 1178. Because an examiner "must attend to the question of inventorship," pursuant to § 102(f), omissions or misrepresentations regarding the inventorship of a patent are material. *PerSeptive*, 225 F.3d at 1322.

**a. University of Bradford Researchers Were The Only Ones To "Invent" Anything If GSK's Invalidity Arguments Are Accepted.**

95. The failure to identify some or all of the University of Bradford researchers as joint inventors is self-evidently material. The University of Bradford researchers performed the relevant tests that are described in the patent as supporting the claim that ropinirole hydrochloride is an effective treatment for Parkinson's disease. (Owen Dep. Tr. at 221:11-15.) Accordingly, without the Bradford researchers' contributions, Dr. Owen would not have "invented" anything that was not already known in the prior art.

96. Moreover, the Bradford researchers prepared and sent their first report (DTX 35) to Dr. Owen several months before the '860 patent application was filed. If the Bradford researchers are not joint inventors of the '860 patent, then that report constitutes prior art under 35 U.S.C. § 102(f) which was never disclosed to the USPTO. Even confidential reports that are not available to the public can be prior art under Section 102(f). *OddzOn Prods., Inc. v. Just Toys, Inc.*, 122 F.3d 1396, 1401-02 (Fed. Cir. 1997). These reports anticipate the subject matter of claim 3 since they describe ropinirole as potentially effective for treating Parkinson's disease. (DTX 35 at GSK-REQ001030 ("This is evidence of marked dopamine agonist action for SK&F

101468-A [*i.e.*, ropinirole] in the striatum which would support a potential value in the treatment of Parkinson's disease."); at GSK-REQ001031 ("It would be reasonable to further investigate the actions of SK&F 101468-A, or a related compound, as an antiparkinson agent ....").) Anticipating prior art is the most material form of prior art. *Fox Indus., Inc. v. Structural Preservation Sys., Inc.*, 922 F.2d 801, 804 (Fed. Cir. 1990). And here, there is no corroborating documentation to show that Dr. Owen had conceived of the claimed invention before Dr. Owen received that report in September 1986.

97. Moreover, if Professor Costall, who led the Bradford research team, had been named as a co-inventor, she would have been obligated to disclose any other material prior art of which she was aware. This should have included the 1978 article she co-authored with Dr. Long. (DTX 160.) Dr. Long testified that this article was one basis for his opinion that compounds identified in claim 1 in which R was a butyl group would be inactive as D<sub>2</sub> agonists and ineffective in treating Parkinson's disease. (Trial Tr. 227:12-229:1.) Instead, this piece of prior art was never disclosed to the USPTO, which was not able to consider the article's teachings in determining whether claim 1 was too broad and, therefore, unpatentable. Dr. Owen's and GSK's patent attorneys' failure to name the Bradford researchers also runs afoul of the requirement that a patent must be limited to describing and claiming what the inventor himself considers to be his or her invention, since the animal tests run at Bradford were the sole basis for claiming that an "effective nontoxic amount" of ropinirole existed for treating humans with Parkinson's. *See In re Mantell*, 454 F.2d at 1402; *Bosies*, 27 F.3d at 542-43.

98. In addition to the inherent materiality of inventorship information, Dr. Owen's and GSK's patent attorneys' affirmative misrepresentation of sole inventorship is the type of "intentional 'misrepresentations, omissions and half-truths to the PTO,'" that the Federal Circuit has found to be "highly material" in other cases. *PerSeptive*, 225 F.3d at 1321.

**b. Ms. Wright's Contribution Was Critical To Conception And Was Relied Upon In The Patent To Distinguish The Prior Art.**

99. The failure to disclose Annette Wright's contributions is likewise material. To the extent claim 1 is deemed to be patentable over the '808 patent because of unexpected activity in the brain, it was Ms. Wright, not Dr. Owen, who made this discovery. (*See* DTX 24.)

100. The '860 patent specification emphasized that a person of ordinary skill in the art at the time the '860 patent application was filed would not have expected ropinirole to be effective in treating Parkinson's disease, "since such compounds have previously been reported as not being capable of producing the central behavioral effects ... ." ('860 patent, col. 1, ll. 54-58.) Thus, Ms. Wright's discovery of ropinirole's CNS activity is one of the primary arguments for patentability advanced by GSK. GSK cannot deny that Ms. Wright's contribution to conception was significant, not a mere recital of what was known in the prior art.

101. As with the failure to identify the Bradford researchers as co-inventors, Dr. Owen's and GSK's patent attorneys' failure to identify Ms. Wright as a co-inventor was highly material. Ms. Wright's involvement was actively concealed from the USPTO by Dr. Owen's blanket claim of "sole" inventorship in the declaration he submitted to the USPTO. *PerSeptive*, 225 F.3d at 1321.

**c. The 749 Other Claimed Compounds Not Invented By Dr. Owen Include Compounds Known To Be Inactive.**

102. Dr. Owen's and GSK's attorneys' failure to name the individual who conceived of using the 749 other compounds in claim 1 to treat Parkinson's and their affirmative misrepresentation that Dr. Owen had conceived of using these compounds for that purpose were also highly material. At trial, Teva's pharmacology expert, Dr. John Long, testified that a person of ordinary skill in the art would not have expected some of the compounds identified in claim 1 to be active as a D<sub>2</sub> agonist, much less effective as a treatment for Parkinson's disease. (Trial Tr. at 219:11-20 (testifying that claim 1 included compounds for which one would expect "[n]o activity at D<sub>2</sub> receptors, centrally or peripherally" and that "if they are inactive with D<sub>2</sub> receptors, they would be inactive for therapy with Parkinson's.").)

103. Specifically, Dr. Long pointed to sets of compounds within the scope of claim 1 that he believed would not be effective treatments for Parkinson's disease—compounds with a di-butylamino side chain (DDX 10) and the compound identified as compound 31 in the DeMarinis article (DDX 11). (Finding ¶¶ 46-47.) His testimony was based on his research experience and publications, as well as publications by GSK. (*Id.*)

104. In fact, GSK's own chemistry expert, Dr. Bartlett, acknowledged that one of the compounds that was anonymously selected for inclusion in claim 1 had already been shown by GSK in prior art articles to be

dopaminergically inactive in the rabbit ear artery assay for peripheral D<sub>2</sub> agonist activity, although he also stated that he lacked the pharmacological expertise to opine on whether that also meant the compound would not be effective in treating Parkinson's disease—as Dr. Long testified. (DTX 56, 376; Trial Tr. at 523:4-11.)

105. There can be no more material information than identifying the person and rationale for including in claim 1 compounds for treating Parkinson's disease that GSK had already reported in public literature to be inactive. Compounds known to be inactive cannot properly be claimed in a patent as active consistent with the requirements of patentability and the inclusion of subject matter that is known to be inactive can itself constitute inequitable conduct. *See Bristol-Myers*, 326 F.3d at 1236-37 (failure to disclose article identifying inoperative embodiments of claimed invention constituted inequitable conduct).

106. If the proper inventors of the '860 patent had been named, they would have been obligated to disclose any prior art showing that these other compounds covered in claim 1 were inactive as D<sub>2</sub> agonists. In this case, at least two articles—the DeMarinis article (DTX 56) and the Cannon 1978 article (DTX 160) should have been disclosed for the reasons discussed above. Dr. Owen and GSK's patent attorneys both knew of the DeMarinis article while they were prosecuting the '860 patent. The DeMarinis article discusses the pharmacological properties of the same ropinirole hydrochloride compound that is the subject of the '860 patent application. (*See* DTX 56.) It is written by many of the same GSK researchers involved in the ropinirole project that is the basis of the '860 patent application. (*See id.*) And it was written and published at approximately the same time—1986 (*see id.*)—that Dr. Owen was involved in the ropinirole hydrochloride project. The record shows that Dr. Owen had—in 1989, during the prosecution of the '860 patent and while Dr. Owen and the GSK patent attorneys owed their duties of disclosure and candor to the USPTO, co-authored a book chapter with other GSK researchers that cited the DeMarinis article as a reference. (DTX 311 at GSK-REQ094405 at reference no. 28.) The fact that the book chapter was included within the internal prosecution files maintained by GSK's patent attorneys for the '808 patent further demonstrates that GSK's attorneys were aware of Dr. Owen's knowledge of the DeMarinis article. (*Id.*) And the DeMarinis article itself was included in GSK's internal prosecution file for the '860 patent (DTX 312 at GSK-REQ094559), so GSK's patent attorneys should have disclosed the article based on their own duties to the USPTO.

107. Similarly, Professors Costall and Naylor at the University of Bradford certainly knew about the 1978 article they co-authored with Dr. Long. Their duty to disclose this prior art, and the consequences for GSK and its hopes of getting the overly broad patent protection it desired, could not be skirted by simply omitting these co-inventors from the patent application. *See Brasseler, U.S.A. I, L.P. v. Stryker Sales Corp*, 267 F.3d 1370, 1383 (Fed. Cir. 2001) (“[O]ne should not be able to cultivate ignorance . . . merely to avoid actual knowledge of that information or prior art.’ . . . Where one does, deceptive intent may be inferred.”).

**4. Dr. Owen And GSK’s Patent Attorneys Intended To Deceive The USPTO When They Submitted Dr. Owen’s Declaration Of Inventorship.**

108. The intent behind Dr. Owen’s averment of “sole inventorship” is clear from the circumstantial evidence of record. In his declaration, Dr. Owen swore that he had “*reviewed and underst[oo]d* the contents of the [‘860 patent application], *including the claims*.” (DTX 97; Finding ¶ 39). So there can be no question that Dr. Owen understood the full scope of the claims of the ‘860 patent, which are not substantially different from the claims in the original application for the ‘860 patent for purposes of this analysis (*compare* DTX 19 at TEV-RQEXP000554 (application claims 1-3) with ‘860 patent claims 1-3.)

109. Dr. Owen contended during his deposition that he relied upon GSK’s patent attorneys to draft claims of an appropriate scope. (Owen Dep. Tr. at 131:20-132:2; 132:5-16.) Moreover, his inventorship declaration states that he understood those claims. (DTX 97.) And having relied upon patent counsel during the drafting process and acknowledging his duty to disclose material information to the USPTO, Dr. Owen is presumed to know the requirements of U.S. patent law. *See Ferring*, 437 F.3d at 1192-93. Accordingly, GSK cannot escape the consequences of its inequitable conduct merely by claiming that Dr. Owen did not know his obligations as a named inventor of the ‘860 patent.

110. Nor can GSK now offer evidence of the subjective “good faith” of Dr. Owen or its attorneys, since it invoked the attorney-client privilege and attorney work product doctrine to prevent Teva from obtaining discovery related to Dr. Owen’s communications with GSK’s attorneys in describing his invention, disclosing prior art and identifying inventors. (*See, e.g.*, Owen Dep. Tr. at 81:10-16). Both Dr. Owen and Mr. Giddings, whom GSK’s counsel identified as the only person still at GSK who was involved in prosecuting the ‘860

patent (May 30, 2006 Ltr. from M. Gordon to C. Brahma at 2 (“We are not aware of any other [*i.e.*, than Mr. Giddings] current GSK employees having any relevant, personal knowledge about the filing or prosecution of the ‘860 patent.”)), remembered little if anything about the drafting of the patent, any investigation into the proper inventors and any search for prior art. (*See, e.g.*, Owen Dep. Tr. at 28:3-29:8; 29:10-11.)

111. Had any of the Bradford researchers been added as joint inventors, they also would have had partial ownership of the ‘860 patent, with the full right to license third parties. Such a situation would certainly have hindered GSK’s efforts to maintain strong patent protection and exclude others, like Teva, from making ropinirole hydrochloride tablets. *See Ethicon, Inc. v. U.S. Surgical Corp.*, 135 F.3d 1456, 1465 (Fed. Cir. 1998) (“[E]ach co-inventor presumptively owns a pro rata undivided interest in the entire patent, no matter what their respective contributions.”). GSK admits that a lawyer was assigned to a project team to seek ways to increase the scope of their patent protection and patent “opportunities”, so it is easy to imagine GSK’s temptation to omit inventors not under its control.<sup>4</sup> (Harvey Dep. Tr. 151:10-17.)

112. Whether Dr. Owen remembers it now or not, he received the first report from the Bradford researchers, so he was well aware of their role in the conception of the claimed inventions. Moreover, the evidence confirms that the CNS effects of ropinirole were demonstrated in experiments run by Annette Wright, and only after those results were relayed to Dr. Owen did he begin to form his alleged “hypothesis.” Accordingly, Dr. Owen was well aware of Ms. Wright’s involvement in the conception of the invention. And Dr. Owen was clearly aware that he had done absolutely no work with any of the compounds identified in claim 1 of the ‘860 patent other than ropinirole. Despite this knowledge, Dr. Owen deliberately lied to the USPTO when he claimed to be the “sole inventor” of the claimed invention, and GSK’s patent attorneys

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<sup>4</sup> While Professor Costall testified that her research team was contractually obligated to assign any intellectual property it created to GSK (Costall Dep. Tr. at 89:7-10), the University of Bradford’s copies of that contract were allegedly destroyed (*id.* at 54:20-55:7) and GSK has not produced a copy of the contract from its own files. Accordingly, there is no evidence to corroborate Professor Costall’s lay, hearsay testimony about the terms of any such contract and their proper interpretation.

submitted his false declaration of inventorship knowing his inventorship claim was false. Under these circumstances, the only plausible explanation for Dr. Owen's and GSK's attorneys' action is that they intended to deceive the USPTO about the inventorship of the '860 patent.

113. Indeed, GSK has offered no contrary explanation that is consistent with Dr. Owen and GSK's patent attorneys having acted in good faith in their dealings with the USPTO. Based on the strong circumstantial evidence of intent and the faltering memories of the relevant GSK witnesses, it is proper for the Court to infer intent to deceive from the facts and circumstances surrounding their actions. *See Bruno*, 394 F.3d at 1354.

114. Moreover, by all accounts, Mr. Giddings, GSK's U.K. patent attorney who was involved in drafting and prosecuting '860 patent, was experienced and worked with equally able U.S. patent prosecution counsel, and GSK has not suggested that they were unfamiliar with their obligations to disclose information to the USPTO. But here, there is no evidence that any GSK attorney in the U.S. or the U.K. conducted any investigation into who the proper inventors were. And Dr. Owen withheld on privilege grounds whether he told any of GSK's attorneys about anyone else who worked on the development of ropinirole for use in treating Parkinson's disease. (Owen Dep. Tr. at 81:10-16.) Here, GSK's attorneys were at least on notice that an investigation into the inventorship of the patent was needed, since none of the tests described in the patent came from GSK's own researchers, no GSK document even mentioned the possibility of using ropinirole treating Parkinson's disease until after the first report from the University of Bradford was delivered to Dr. Owen, and GSK only made and tested one of the hundreds of compounds identified in claim 1. Given that notice, and GSK's attorneys' seeming disregard for those facts, the Court finds it proper to infer that GSK's attorneys acted with deceptive intent. As the Federal Circuit warned in *Brasseler*, 267 F.3d at 1383:

In *Hennessy*, we warned that 'one should not be able to cultivate ignorance, or disregard numerous warnings that material information or prior art may exist, merely to avoid actual knowledge of that information or prior art.' 836 F.2d at 526 n. 6, 5 USPQ2d at 1275 n. 6. ***Where one does, deceptive intent may be inferred.*** *Id.* Once an attorney, or an applicant, has notice that information exists that appears material and questionable, that person cannot ignore that notice in an effort to avoid his or her duty to disclose.

**B. The ‘860 Patent Should Be Held Unenforceable For False And Misleading Statements Made To Overcome The Prior Art.**

115. Making false and misleading statements during prosecution is an undeniable breach of the duty of candor to the USPTO. *See Hoffman-LaRoche*, 323 F.3d at 1371. Here, clear and convincing evidence shows that a key representation made in the ‘860 patent to distinguish the prior art D<sub>2</sub> agonists from the claimed invention was false and misleading, and that Dr. Owen and GSK’s attorneys deliberately made these representations to obtain protection for ropinirole beyond that provided in the ‘808 patent.

**1. The Statements Creating The Distinction Between Pre- And Post-Synaptic D<sub>2</sub> Agonists Were False and Misleading.**

116. In the ‘860 patent, Dr. Owen and GSK’s attorneys characterized the prior art dopamine agonists known to be effective anti-Parkinson’s drugs as “post-synaptic” D<sub>2</sub> agonists. (‘860 patent, col. 1, ll. 36-38.) Conversely, they told the public and the USPTO that the compounds they now sought to patent as treatments for Parkinson’s disease had previously been disclosed in the prior art (including in the ‘808 patent) as only “presynaptic” D<sub>2</sub> agonists. (*Id.* at col. 1, ll. 48-53.) The patent then attributes to Dr. Owen the discovery that these compounds were also “post synaptic” D<sub>2</sub> agonists that were active in the brain. (*Id.*) On the basis of this alleged new discovery, the patent concluded that the claimed compounds “would be expected to have utility as anti-Parkinson’s agents.” These representations in the ‘860 patent were false and misleading.

117. While the ‘860 patent says the prior art Parkinson’s disease treatments were known as “post-synaptic” D<sub>2</sub> agonists (*id.* at col. 1, ll. 48-53), GSK’s own prior art article—the DeMarinis article—describes these same prior art D<sub>2</sub> agonists as *pre*-synaptic, not post-synaptic, D<sub>2</sub> agonists (DTX 56 at GSK-REQ006742). The suggestion in GSK’s ‘860 patent that a D<sub>2</sub> agonist compound had to have been known to act on post-synaptic receptors before those of ordinary skill in the art would have expected the compound to have anti-Parkinson’s activity (‘860 patent, col. 1, ll. 48-53) is false and misleading and was clearly put in the ‘860 patent to distinguish the use of the claimed compounds over the essentially identical prior art.

118. When GSK’s misleading distinction between pre-synaptic and post-synaptic D<sub>2</sub> agonists in the ‘860 patent was held up to scrutiny by the EPO, GSK acknowledged that the statements about the prior art D<sub>2</sub> agonists in the ‘860 patent were false or misleading. The EPO initially rejected the European counterpart to

the '860 patent based on the discrepancy between what the DeMarinis article stated about the site of action of the prior art compounds and the characterization of those compounds in the '860 patent:

But if both the indolone compounds [claimed in the '860 patent] and bromocriptine were already known to have the same mode of action, then, the man versed in the art being aware of the anti-Parkinson effect of bromocriptine in his search for other Parkinson drugs would obviously expect positive results also from the indolone compounds of the present application and select them for further studies. A possible use as a Parkinson drug would then rather be expected and the additional beneficial effects would be found in the course of the experimental studies (one way street). No inventive step would have been involved.

(DTX 134 at GSK-REQ018297.) To overcome the EPO's rejection, GSK was forced to acknowledge that the statement in the European application (which was identical to the '860 patent application) characterizing the prior art treatments for Parkinson's as "post-synaptic" D<sub>2</sub> agonists was, in fact, "an error" and that it was "correct to state that [the prior art dopamine agonist] is a prejunctional D<sub>2</sub> receptor agonist." (DTX 133 at GSK-REQ018298.) Although the '860 patent had already issued by that time, at no time did GSK attempt to correct the '860 patent through reissue or otherwise.

119. Perhaps more importantly, Dr. Owen knew the pre-/post-synaptic distinction drawn in the '860 patent was not relevant to whether ropinirole would be expected to be effective in treating Parkinson's disease. Dr. Owen's understanding was that there was no pharmacological distinction between "pre-" and "post-" synaptic receptors—"If its an agonist for D<sub>2</sub> receptors, it will be an agonist for D<sub>2</sub> receptors, and whether they are presynaptic or postsynaptic is a piece of anatomy, not a piece of pharmacology." (Owen Dep. Tr. at 191:11-14.) Far from being the critical distinction it is portrayed to be in the '860 patent, Dr. Owen admitted the distinction was "an absolute irrelevance." (*Id.* at 192:19-193:3.)

## 2. The Statements Creating This Distinction Were Material To Patentability.

120. The test for materiality is whether "there is a substantial likelihood that a reasonable examiner would have considered the information important in deciding whether to allow the application to issue as a patent." *Ferring*, 437 F.3d at 1187 (quoting 37 C.F.R. § 1.56 (1989)). Here, the false statements regarding pre- versus post-synaptic receptors are highly material to the patentability of the '860 patent. In fact, it is central to the patentability of all of the claims.

121. The patent acknowledges the basic scientific principle that ropinirole would be “expected to have utility in the treatment of Parkinsonism.” (‘860 patent, col. 1, ll. 48-53.) The ‘860 patent acknowledges that post-synaptic D<sub>2</sub> receptors that are active in the brain could be effective treatments for Parkinson’s disease, the ‘808 patent explicitly described the compounds it disclosed as pre-synaptic D<sub>2</sub> agonists, and the prior art ‘808 patent and ‘944 patents clearly disclosed many of the compounds identified in the claim 1 of the ‘860 patent (‘808 patent, col. 4, ll. 31-34.) Notably, the ‘808 patent disclosed ropinirole, the same compound described as the preferred compound in the ‘860 patent. (See PTX 13 [‘808 patent]). If there was no distinction between pre-synaptic and post-synaptic activity, the previous disclosure of D<sub>2</sub> agonist activity would have been understood to apply to both pre-synaptic and post-synaptic receptors, eliminating one of the arguments the applicants relied upon in the ‘860 patent to distinguish the claimed invention from the prior art that already explained ropinirole’s (and various other claimed compounds’) D<sub>2</sub> agonist activity.

122. Despite acknowledging during his deposition that the distinction between pre- and post-synaptic receptors is “an absolute irrelevance,” (Owen Dep. Tr. at 192:19-193:3), Dr. Owen and GSK’s patent attorneys allowed the ‘860 patent application to be filed with these misleading statements. Dr. Owen’s declaration of inventorship confirms that he read and understood the patent application. (DTX 97.)

123. Any doubts about the high materiality of the ‘860 patent can be resolved because the EPO actually rejected the claims of the European counterpart application to the ‘860 patent based on the DeMarinis article and this issue. (See DTX 134.) Although the EPO ultimately issued the application after additional arguments by GSK attorneys, the rejection plainly indicates the high materiality placed on the “pre-” versus “post-” synaptic receptor representations in the patent application. See *Dayco Prods., Inc. v. Total Containment, Inc.*, 329 F.3d 1358, 1368 (Fed. Cir. 2003) (“An adverse decision by another examiner, therefore, meets the materiality standard.”)

### **3. The Statements Were Made With The Intent to Deceive The USPTO.**

124. The evidence shows the false and misleading statements were made intentionally. Dr. Owen swore to the USPTO that he read and understood his patent application. (DTX 97.) If that is true, and this Court must assume that it was, he read and understood that false and misleading representations were being made to the

USPTO in order to obtain patent coverage by distinguishing the prior art. If he did not, in fact, read and understand his application when he submitted his declaration of inventorship, then Dr. Owen's misrepresentation that he reviewed the application would itself be a breach of his duty of candor to the USPTO. In either case, it is undeniable that intentional and material misrepresentations were made to the USPTO by Dr. Owen and/or GSK's attorneys.

125. Similarly, the evidence shows those prosecuting the patent application were aware of the false or misleading nature of '860 patent's characterization of the prior art D<sub>2</sub> agonists treatments for Parkinson's as "post-synaptic." The prior art DeMarinis article (DTX 56), which says exactly the opposite about these prior art Parkinson's treatments, taught that compounds known to be pre-synaptic D<sub>2</sub> agonists were also known in the art as treatments for Parkinson's, destroying the distinction between pre-synaptic agonists and post-synaptic agonists that the Background section of the '860 patent tries to create. ('860 patent, col. 1, ll. 48-53.)

126. As discussed above in Conclusion ¶ 106, both Dr. Owen and his patent attorneys at GSK were aware of the DeMarinis article (DTX 56) during the time period that the '860 patent application was being prosecuted. Thus, they had a duty to disclose the DeMarinis article to the USPTO so that it could consider GSK's own scientists' contrary characterization of the prior art dopamine agonists as pre-synaptic D<sub>2</sub> agonists, rather than post-synaptic D<sub>2</sub> agonists as misleadingly stated in the '860 patent itself.

127. These misstatements, affirmatively made within the patent specification itself, cannot be chalked up as "inadvertent," particularly where no effort was made to correct them once they were discovered. The Court finds that Dr. Owen's and/or GSK's patent attorneys' affirmative misstatements creating a false distinction between compounds capable of acting at pre-synaptic versus post-synaptic D<sub>2</sub> receptors and subsequent failure to disclose the DeMarinis article or other information to correct those misrepresentations and clarify that such a distinction was irrelevant and unfounded constituted inequitable conduct.

#### **C. GSK Has No Credible, "Good Faith" Explanation Of These Facts.**

128. Rather than explaining how Dr. Owen's and GSK's patent attorneys' actions support an explanation of these facts that would be consistent with their duties to the Patent (and presenting supporting evidence for those explanations), GSK tries to paint Teva's arguments as an indictment of the entire patent prosecution

process, at least as it is typically practiced in the branded pharmaceutical industry. But based on the evidence discussed above, nothing could be further from the truth. Teva's defenses, and this Court's ruling are necessary to protect the integrity of the patent prosecution process from practices that are clearly at odds with statutory requirements and USPTO regulations, but which GSK claims are now nonetheless common practice. (*See, e.g.*, Trial Tr. 56:21-25.) Inventors and those involved on their behalf in preparing and prosecuting patent applications owe strict duties of "candor, good faith, and honesty" to the USPTO. *Bristol-Myers*, 326 F.3d at 1233-34. In the face of conduct that includes making affirmative misrepresentations to the USPTO, both about the state of the prior art and the identities of the inventors of a patent, and seeking patent protection for "inventions" that were never even conceived by the sole named inventor and are known at least in part not to work, it is no excuse that others in the industry may commit the same wrongs.

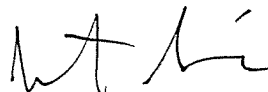
129. GSK also argues that inequitable conduct that relates only to unasserted claims of a patent should not render the asserted claims unenforceable. That argument is contrary to well-established Federal Circuit precedent. *See Kingsdown*, 863 F.2d at 877; *see also Praxair*, 445 F. Supp. 2d at 478 ("If it is established that a patent applicant engaged in inequitable conduct with respect to one claim, then the entire patent application is rendered unenforceable."). Even conduct completely unrelated to the substance of a particular claim, such as the payment of fees to the USPTO, can be a basis for rendering an entire patent unenforceable for inequitable conduct. *See Ulead Sys., Inc. v. Lex Computer & Mgmt. Corp.*, 351 F.3d 1139, 1150 (Fed. Cir. 2003) (inequitable conduct can arise from improperly claiming entitlement to pay reduced fees to the USPTO). Even though GSK currently only asserts that claim 3 of the '860 patent is infringed by Teva's ANDA filing and no longer asserts that claim 1 is infringed, inequitable conduct related to claim 1, but not claim 3, is relevant because any inequitable conduct will render all of the claims unenforceable. Notably, when this litigation began, GSK asserted all three claims of the '860 patent against Teva (*see* DTX 140 at Pl.'s Response to Teva's Interrogatory No. 1), and it only narrowed its assertions to claim 3 one month before the original close of fact discovery. (*See* 6/23/06 Stip. ¶ 1.) Moreover, as a factual matter, Teva's claim 1-specific argument for inequitable conduct is not wholly unrelated to claim 3, since the logical leap that some

unknown co-inventor made to include the non-ropinirole compounds in claim 1 is the same leap that Teva contended was reasonable to make from the prior art to render claim 3 invalid.

#### IV. CONCLUSION

130. Having concluded that GSK committed inequitable conduct by not properly disclosing information related to the inventorship of the '860 patent and by mischaracterizing the nature of prior art dopamine agonists known as treatments for Parkinson's disease in order to create an artificial grounds for distinguishing the claimed invention, this Court concludes that the '860 patent is unenforceable. Accordingly, Plaintiff GSK's sole remaining claim and requested relief are DENIED and Teva's counterclaim for declaratory judgment of inequitable conduct is GRANTED.

Respectfully submitted,



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**CERTIFICATE OF SERVICE**

I, Monté T. Squire, Esquire, hereby certify that on February 14, 2007, I caused to be electronically filed a true and correct copy of the foregoing document with the Clerk of the Court using CM/ECF, which will send notification that such filing is available for viewing and downloading to the following counsel of record:

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